



THE WORLD JEWELLERY CONFEDERATION

**2007-6**

2007-11-06

**CIBJO/GEM MATERIALS**

CIBJO/SECTOR 3/PEARL COMMISSION

## **THE PEARL BOOK**

### **Natural, Cultured & Imitation Pearls — Terminology & Classification**

(Including information on modifications) [draft with edits](#)

Foreword.....	xii
Introduction .....	xiv
1. Scope.....	1
2. Normative references.....	1
3. Pearl Categories .....	1
4. Normative Clauses .....	1
4.1. General.....	1
4.2. The use of terms .....	2
4.3. Modifications and/or treatments .....	4
4.4. Nacre thickness .....	5
4.5. Imitations or simulants.....	5
4.6. Weight and measurement .....	6
4.6.2. Measurement .....	6
5. Terms and definitions .....	7
5.1. Abalone.....	7
5.2. Abalone Cultured Blister.....	7
5.3. Abalone Pearl .....	7
5.4. <i>Actinonaias pectorosa</i> .....	7
5.5. Adductor muscle.....	7
5.6. Akoya .....	7
5.7. Akoya cultured pearl .....	7

5.8.	<b>Akoya pearl oyster</b> .....	8
5.11.	<b>Assembled</b> .....	8
5.12.	<b>Assembled Cultured Blister</b> .....	8
5.13.	<b>Atlantic Pearl Oyster</b> .....	8
5.14.	<b>Australpearls</b> .....	8
5.15.	<b>Baroque</b> .....	8
5.16.	<b>Bead</b> .....	8
5.17.	<b>Beaded Cultured Pearl</b> .....	8
5.18.	<b>Bivalve</b> .....	9
5.19.	<b>Biwa Cultured Pearl</b> .....	9
5.20.	<b>Black Cultured Pearl</b> .....	9
5.21.	<b>Black-lipped Pearl Oyster</b> .....	9
5.23.	<b>Bleaching</b> .....	9
5.24.	<b>Blister cultured pearl</b> .....	9
5.25.	<b>Blister pearl</b> .....	9
5.26.	<b>Blisters</b> .....	9
5.27.	<b>Bombay pearls</b> .....	10
5.30.	<b>Button-shaped pearl</b> .....	10
5.31.	<b>Carat</b> .....	10
5.32.	<b><i>Cassis madagascarensis</i></b> .....	10
5.33.	<b>Cerclé</b> .....	10
5.34.	<b>Ceylon Pearl Oyster</b> .....	10
5.35.	<b>Chambered <i>nautilus</i></b> .....	10
5.36.	<b>Chinese drilling</b> .....	10

5.37.	<b>Choker</b> .....	11
5.38.	<b>Circled cultured pearl</b> .....	11
5.39.	<b>Clam pearl</b> .....	11
5.40.	<b>Cleaning</b> .....	11
5.41.	<b>Coating</b> .....	11
5.42.	<b>Collar</b> .....	11
5.43.	<b>Commercial Name</b> .....	11
5.44.	<b>Composite cultured pearl</b> .....	11
5.45.	<b>Conch</b> .....	11
5.46.	<b>Conch Pearl</b> .....	11
5.47.	<b>Conchiolin</b> .....	11
5.48.	<b>Coque de perle</b> .....	12
5.49.	<b><i>Cristaria plicata</i></b> .....	12
5.50.	<b>Cultured</b> .....	12
5.54.	<b>Cut Cultured Pearls</b> .....	12
5.55.	<b>Cut Pearls</b> .....	12
5.56.	<b><i>Cyclonaias tuberculata</i></b> .....	13
5.57.	<b><i>Cyrtonaias tampicoensis</i></b> .....	13
5.58.	<b>Cyst pearls</b> .....	13
5.59.	<b><i>Dobo pearls</i></b> .....	13
5.60.	<b>Dyeing</b> .....	13
5.61.	<b>Drilled</b> .....	13
5.62.	<b><i>Ellipsaria lineolata</i></b> .....	13
5.63.	<b><i>Elliptio crassidens</i></b> .....	13

5.64.	Emperor Helmet.....	13
5.65.	<i>Essence d'orient</i> .....	13
5.66.	Faceted cultured pearls.....	14
5.67.	Faceting.....	14
5.68.	Filling.....	14
5.69.	Fine pearl .....	14
5.70.	Freshwater .....	14
5.71.	Freshwater Cultured Pearl .....	14
5.72.	Freshwater Pearl .....	14
5.73.	Frequency .....	14
5.74.	<i>Fusconaia ebena</i> .....	14
5.75.	<i>Fusconaia flava</i> .....	14
5.76.	Gastropod .....	14
5.77.	Gold-lipped Pearl Oyster .....	14
5.78.	Gonad .....	15
5.79.	Gonad pearl .....	15
5.80.	Graft.....	15
5.81.	Grafting .....	15
5.82.	Grain .....	15
5.83.	Gram .....	15
5.84.	Half composite cultured pearl.....	15
5.85.	Half cultured blister.....	15
5.86.	Half cultured pearl.....	15
5.87.	<i>Haliotis</i> .....	15

5.89.	Heating .....	15
5.90.	Hinge pearl.....	16
5.91.	Hollow cultured pearl.....	16
5.92.	Hollow pearl.....	16
5.93.	Horse Conch .....	16
5.94.	<i>Hyriopsis cumingii</i> .....	16
5.95.	<i>Hyriopsis schlegeli</i> .....	16
5.96.	Imitation Pearls.....	16
5.97.	Invertebrate.....	16
5.98.	Irradiation.....	16
5.100.	Kan.....	16
5.101.	Keshi.....	16
5.102.	Keshi Cultured Pearl.....	17
5.103.	Kilogram.....	17
5.104.	La Paz Pearl Oyster.....	17
5.105.	<i>Lasmigona complanata</i> .....	17
5.106.	Liang.....	17
5.107.	<i>Ligumia recta</i> .....	17
5.108.	Lion’s Paw.....	17
5.109.	Lustre .....	17
5.110.	Lustre enhancement .....	18
5.111.	<i>Mabe</i> .....	18
5.112.	Mantle .....	18
5.113.	<i>Margaritifera</i> .....	18

5.114.	<i>Margaritifera margaritifera</i> .....	18
5.115.	Marine Gastropod.....	18
5.116.	Mass .....	18
5.117.	<i>Matinee</i> .....	18
5.118.	<i>Megalonaias nervosa</i> .....	18
5.119.	<i>Melo aethiopica</i> .....	19
5.120.	<i>Melo amphora</i> .....	19
5.121.	<i>Melo broderipii</i> .....	19
5.122.	<i>Melo georginae</i> .....	19
5.123.	<i>Melo melo</i> .....	19
5.124.	Melo Pearl .....	19
5.125.	<i>Mercenaria mercenaria</i> .....	20
5.126.	Modification .....	20
5.127.	Mollusc .....	20
5.128.	Momme .....	20
5.129.	Mother-of-pearl .....	20
5.130.	Nacre .....	20
5.131.	Nacreous .....	20
5.132.	Nacre thickness.....	20
5.133.	Natural .....	20
5.134.	Natural Pearls .....	20
5.135.	<i>Nodipecten (Lyropecten) nodosus</i> .....	21
5.136.	<i>Nodipecten (Lyropecten) subnodosus</i> .....	21
5.137.	Non-beaded cultured pearl.....	21

5.138.	<b>Non-nacreous pearls</b> .....	21
5.139.	<b>Non-nucleated cultured pearl</b> .....	21
5.140.	<b>Nucleus</b> .....	21
5.141.	<b>Objet d'art</b> .....	21
5.142.	<b>Obliquaria reflexa</b> .....	21
5.144.	<b>Opera</b> .....	21
5.145.	<b>Orient</b> .....	21
5.146.	<b>Oriental Pearl</b> .....	21
5.147.	<b>Overtone</b> .....	22
5.148.	<b>Oyster</b> .....	22
5.149.	<b>Part-Drilled</b> .....	22
5.150.	<b>Pearl</b> .....	22
5.151.	<b>Pearl Oyster</b> .....	22
5.152.	<b>Pearl Polishing</b> .....	22
5.153.	<b>Pearl-sac</b> .....	22
5.154.	<b>Peeling</b> .....	22
5.155.	<b>Pen Pearl</b> .....	22
5.156.	<b>Piece</b> .....	22
5.157.	<b>Piece holder</b> .....	22
5.158.	<b>Piece needle</b> .....	22
5.159.	<b><i>Pinctada fucata</i></b> .....	23
5.160.	<b><i>Pinctada imbricata</i></b> .....	23
5.161.	<b><i>Pinctada maculata</i></b> .....	23
5.162.	<b><i>Pinctada martensii</i></b> .....	23



5.163. *Pinctada margaritifera* .....23

5.164. *Pinctada maxima* .....23

5.165. *Pinctada mazatlanica* .....23

5.166. *Pinctada radiata* .....23

5.167. *Placoplectin magellanicus* .....24

5.168. *Pleuroploca gigantea* .....24

5.169. Pinna pearl .....24

5.170. Point of Sale .....24

5.172. *Potamilis purpuratus* .....24

5.173. Princess .....24

5.174. Process .....24

5.175. *Proptera alata* .....24

5.176. *Proptera purpurata* .....24

5.177. *Pteria penguin* .....24

5.178. *Pteria sterna* .....25

5.179. *Quadrula metanevra* .....25

5.180. *Quadrula nodulata* .....25

5.181. *Quadrula pustulosa* .....25

5.182. *Quadrula quadrula* .....25

5.183. Queen Conch .....25

5.184. Rope .....25

5.185. Saltwater .....25

5.186. Saltwater Cultured pearl .....25

5.187. *Sautoir* .....26

5.188.	Scallop.....	26
5.189.	Scallop Pearl.....	26
5.190.	Scottish pearls.....	26
5.192.	Seed Pearl.....	26
5.193.	Silver-lipped Pearl Oyster .....	26
5.194.	Simulant/Simulated.....	26
5.195.	Skinning .....	26
5.196.	South Sea.....	26
5.197.	South Sea pearls .....	26
5.198.	South Sea cultured pearls.....	27
5.201.	Spat.....	27
5.202.	Stability .....	27
5.203.	<i>Strombus gigas</i> .....	27
5.204.	Tahiti cultured pearl.....	27
5.205.	Tahitian cultured pearl.....	27
5.206.	Tahiti Keshi cultured pearl .....	27
5.207.	Tahiti <i>mabé</i> .....	28
5.208.	Tahiti pearl .....	28
5.209.	Three-quarter composite cultured pearl .....	28
5.210.	Three quarter cultured blister .....	28
5.211.	Three quarter cultured pearl .....	28
5.212.	Tinting .....	28
5.213.	Tissue nucleated cultured pearl .....	28
5.215.	Treatment.....	28

5.216. **Triangleshell Pearl Mussel** .....28

5.217. ***Tridacna gigas*** .....28

5.218. **Waxing** .....28

5.220. **Working** .....29

**ANNEX A (NORMATIVE) QUICK REFERENCE TO THE MODIFICATIONS AND TREATMENTS TO PEARLS AND CULTURED PEARLS** .....30

**ANNEX B (INFORMATIVE) NATURAL & CULTURED PEARLS; LOCALITIES** .....35

**ANNEX C (NORMATIVE)** .....41

**6. CARE REQUIREMENTS PEARLS AND CULTURED PEARLS (ALSO SEE ANNEX A)** .....41

6.1. **Normal care** .....41

6.2. **Special Care** .....41

6.3. **Fading and other colour changes** .....41

**References** .....42

**Index**.....45

## Foreword

CIBJO is the French acronym for the **Confédération Internationale de la Bijouterie, Joaillerie, Orfèvrerie, des Diamants, Perles et Pierres**, which translates as the International Confederation of Jewellery, Silverware, Diamonds, Pearls and Stones (normally shortened to the International Jewellery Confederation). Founded in 1926 as BIBOAH, a European organisation whose mission was to represent and advance the interests of the jewellery trade in Europe, it was reorganised in 1961 and renamed CIBJO. Today CIBJO, which is domiciled in Switzerland, has members from countries representing all five continents of the world. CIBJO printed its first deliberations on terminology and trade practices in 1968.

It is the task of CIBJO to record the accepted trade practices and nomenclature for the industry throughout the world. The records of the trade practices complement existing fair trade legislation of a nation or in the absence of relevant national laws they can be considered as trading standards. In countries where laws or norms exist, which conflict with the laws, norms or trade practices in other countries, CIBJO will support the national trade organizations to prevent trade barriers developing. The purpose of CIBJO is to encourage harmonization, promote international co-operation within the jewellery industry, and to consider issues which are of concern to the trade worldwide. Foremost amongst these the aim is to protect consumer confidence in the industry. CIBJO pursues all of these objectives through informed deliberation and by reaching decisions in accordance with its Statutes. CIBJO relies upon the initiative of its member national organizations to support and implement its decisions, and to protect the trust of the public in the industry.

The work of CIBJO is accomplished through three independent sectors within the Confederation:

Sector 1 - Jewellery manufacturing, technology and precious metals

Sector 2 - Jewellery distribution

Sector 3 - Gem Materials - cutting, trade and laboratories

The national umbrella organization for each country represents, in principle, all the national trade organizations involved in the three sectors mentioned above. This democratic structure, which has contributed to CIBJO's world-wide recognition, provides an international forum for the trade to collectively draw attention to issues and implement resulting decisions. The appointed delegates attend an annual CIBJO Congress.

Intersectoral Commissions consider detailed issues. At present there are the following Commissions:

Coloured Stone

Diamond

Ethics

Gemmological

Pearl

Marketing & Education

Precious Metals

World Jewellers Vigilance

The CIBJO Executive Committee must approve any decisions reached at Sector and Commission level by a majority of voting delegates. The Commissions for Diamonds, Gemstones, and Pearls, have collated the guidelines, which present the accepted trading practices for applying descriptions to these materials. It is in the interest of all those involved to be aware of them. Furthermore it is our mutual responsibility to support these recommendations, which concern all professional people connected with diamonds, gemstones, and pearls.

CIBJO Secretariat:

CIBJO, The World Jewellery Confederation  
Piazzale Carlo Magno, 1  
20149 Milano, Italy

Tel: +39-02-4997-7098 / 7097 / 6187 Fax: + 39 02- 4997-7059

E-mail: [cibjo@cibjo.org](mailto:cibjo@cibjo.org)

Web site: [www.cibjo.org](http://www.cibjo.org)

(Until the Laboratory Book is published Article 2 & 11 of the previous Gemstone Book remains active)

## **Introduction**

This CIBJO Pearl Standard/rules is designed to assist all those involved in the purchase or sale of pearls (5.150, 5.134), cultured pearls (5.51), composites (5.44) and imitation pearls (5.96). The standard/rules is non judgmental and the definitions and clauses contained herein are formatted and worded only to ensure that each pearl bought or sold is done so with clarity and honesty. The stability of the market place depends upon the use of the proper nomenclature and the declaration of all known facts which ensure a fully informed purchase or sale.

In the case of natural and cultured pearls it is important that those involved in sales or purchases can relate to the mollusc that produces each pearl variety. Such knowledge helps in the understanding of colour, structure, stability and rarity. It is also important to understand the culturing process; through this knowledge the differences between bead nucleation and tissue nucleation and the relationships between nacre thickness and productivity become clear and explainable to the end user.

The Scope (1) of the Standard/rules is set out, as are the Normative References (2). The Terms and Definitions (5) are expansive and are extensively cross references throughout the Normative Clauses (4), Annexes and Tables. It is important that the reader refers to the relevant Terms and Definitions when consulting each Normative Clause.

President the CIBJO Pearl Commission

Nov-07

# NATURAL, CULTURED AND IMITATION PEARLS – TERMINOLOGY AND CLASSIFICATION (NOMENCLATURE)

## 1. Scope

The terminology and classification (nomenclature) for pearls (5.150), cultured pearls (5.51), composites (5.44) and imitation pearls (5.96) are established with reference to commercial usage and are in conformity with the practices of the international natural, cultured and imitation pearl trades. The terminology and classifications (nomenclature) of natural, cultured and imitation pearls as set out herein shall be used by all traders participating as members of CIBJO member organizations within all member nations.

NOTE: Exceptions may be made if the Law of a particular member nation conflicts with the clauses herein

## 2. Normative references

**The Diamond Book**, CIBJO, International Confederation of Jewellery, Silverware, Diamonds, Pearls and Stones), the World Jewellery Confederation, Piazzale Carlo Magno,1, 20149 Milano, Italy. [cibjo@cibjo.org](mailto:cibjo@cibjo.org)

**The Gemstone Book**, CIBJO (International Confederation of Jewellery, Silverware, Diamonds, Pearls and Stones), the World Jewellery Confederation, Piazzale Carlo Magno,1, 20149 Milano, Italy. [cibjo@cibjo.org](mailto:cibjo@cibjo.org)

## 3. Pearl Categories

The jewellery industry and trade recognize three categories of pearl: natural pearls or pearls (5.134), cultured pearls (5.51) and imitation pearls (5.96). For each category the following clauses shall apply.

## 4. Normative Clauses

### 4.1. General

Pearls (5.150 and 5.134) cultured pearls (5.51), composites (5.44) and imitation pearls (5.96) shall be named and described in accordance with the definitions, clauses and annexes herein. This applies to descriptions in all publications and communications addressed to the public as well as to all commercial documents (e.g., advertisements, offers, labels, memos, delivery notes and invoices) and to appraisals.

#### 4.1.1. Biological name

Pearls (5.150) and cultured pearls (5.51) which are not listed in Annex A or defined in (5) shall be described by the biological name of the mollusc from which they originate only.

NOTE: Biological name of the pearl or cultured pearl may be used to correctly identify the natural or cultured pearl instead of the commercial name (Annex A). Use the descriptive adjective for the pearl or cultured pearl, if any is needed, as indicated in Annex A.

NOTE: the correct biological name preceded or followed by a colour description may substitute for any commercial name.

#### 4.1.2. Approval of commercial names

all commercial names not listed in Annex A, whether new or old, shall be submitted to CIBJO for approval and inclusion within this standard/rules.

#### 4.1.3. The term 'cultured'

the term 'cultured' (5.50 and 5.51) shall only be used for cultured pearls (5.51)

NOTE: the placing of an asterisk next to the word pearl making reference to a footnote explanation of the fact the product is a cultured pearl does not comply with this clause.

#### **4.1.4. Display**

when pearls (5.150 and 5.134) cultured pearls (5.51), composites (5.44) and imitation pearls (5.96) are displayed for sale all clauses within this standard/rules shall apply. In cases where not all displays are devoted exclusively to pearls (5.150 and 5.134) cultured pearls (5.51), composites (5.44) and imitation pearls (5.96), or where jewellery is not decorated exclusively with pearls (5.150 and 5.134) cultured pearls (5.51), composites (5.44) and imitation pearls (5.96) but contains one of these products, an easily noticeable label shall clearly indicate the precise nature of the objects being shown. For any piece of jewellery on display that is composed of pearls (5.134) as well as cultured pearls (5.51), composites (5.44) or imitation pearls (5.96), an easily noticeable and legible label adjoining each piece of jewellery shall clearly indicate the details of its composition in accordance with the clauses herein.

#### **4.1.5. Geographical area**

the names of specific geographical areas shall only be used to refer exclusively to pearls and or cultured pearls which are found or grown exclusively from that area e.g., "Biwa Cultured Pearl" (5.19) shall only be used to describe cultured pearls grown in freshwater bivalve molluscs in Lake Biwa, Japan, etc, unless the name of the geographical area is part of the commercial name as listed in Table 1, e.g., South Sea Cultured Pearl (5.198), etc.

### **4.2. The use of terms**

Only those pearls that conform to the definition contained in 5.134 shall be described as natural pearls and only those pearls that conform to the definition contained in 5.51 shall be described as cultured pearls and all descriptions for pearls and cultured pearls shall conform to the content of all other clauses herein.

#### **4.2.1. 'Assembled/composite'**

Assembled/Composite cultured pearls shall be described by the words composite or assembled according to the composite construction (except when they can be defined as an imitation (5.96) and shall, prior to the closing of the sale, require a verbal explanation that it is an assembled/composite pearl product, and, in the event of a written presentation, shall be immediately preceded by the correct names of the components of the assembled product, the names of which shall be mentioned from the upper part downwards and be separated by a slash (/). Except where all parts of the assembled/composite pearl products are of the same substance (excluding any cement) when the name of this substance shall be stated only once. Do not abbreviate. The terms assembled or composite, in the event of a written presentation, shall appear with equal emphasis and prominence, with characters of the same size and colour as those of the names of the components. Do not abbreviate. If an assembled/composite pearl can be purchased without personally viewing the product, (e.g., direct mail, catalogues, online services, televised shopping programs, etc.) explanation shall be made that it is an assembled/composite pearl in the presentation and/or in the description of the product prior to the close of the sale.

NOTE: The placing of an asterisk next to any name or combination of names of a pearl, making reference to a footnote explanation of the fact that the product is an assembled/composite, does not comply with the requirements of this clause.

Do not use a qualifying title other than 'assembled' or 'composite' to describe any product classified under (4.2.1).

#### **4.2.2. 'Cultured'**

the term 'cultured' shall only be used for cultured pearls (5.51). This applies to all cultured pearls, whichever method is used for their formation.

#### **4.2.3. 'Freshwater pearl'**

the term 'freshwater (5.70) pearl (5.150)' shall only be used to describe natural freshwater pearls (5.72).



#### **4.2.4. 'Freshwater cultured pearl'**

the term 'freshwater cultured pearl' (5.71) shall always be used for cultured pearls that have been cultured in freshwater rivers or lakes. When making reference to a freshwater cultured pearl, the words 'cultured pearl' shall immediately be preceded by the word 'freshwater' and shall, prior to the closing of the sale, require a verbal explanation that it is a freshwater cultured pearl, and in the event of a written presentation, shall immediately be preceded by the word 'freshwater', with equal emphasis and prominence, with characters of the same size and color as those of the name itself. Do not abbreviate. If a freshwater cultured pearl can be purchased without personally viewing the product, (e.g., direct mail, catalogues, online services, televised shopping programmes) explanation shall be made that it is a freshwater cultured pearl in the presentation and/or description of the product prior to the close of the sale.

NOTE: The placing of an asterisk next to the name of a freshwater cultured pearl, making reference to a footnote explanation of the fact that the product is a freshwater cultured pearl, does not comply with the requirements of this clause.

#### **4.2.5. Natural Pearl**

The term natural pearl shall only be used to describe natural pearls (5.134) i.e, pearls produced naturally without any human intervention.

#### **4.2.6. 'Oriental pearl'**

the term 'oriental pearl' (5.146) shall only be used for natural saltwater pearls (5.191) and shall not be used to denote the quality or appearance of a pearl.

#### **4.2.7. 'Pearl'**

the term 'pearl' (5.150) used alone and without further explanation shall only be used to describe a natural pearl (5.134). It is unfair trade practice to use the unqualified word "pearl" to refer to any object or product which is not in fact a natural pearl.

#### **4.2.8. 'Saltwater cultured pearl'**

the term 'cultured pearl' (5.51) shall always be used for cultured pearls cultured in bodies of saltwater. When making reference to a saltwater cultured pearl, the words 'cultured pearl' do not need to be preceded by the word 'saltwater' but shall, prior to the closing of the sale, require a verbal explanation only that it is a cultured pearl, this applies also in the event of a written presentation. Do not abbreviate. If a saltwater cultured pearl can be purchased without personally viewing the product, (e.g., direct mail, catalogues, online services, televised shopping programmes) explanation shall be made that it is a cultured pearl in the presentation and/or description of the product prior to the close of the sale.

Note -The placing of an asterisk next to the name of saltwater cultured pearl, making reference to a footnote explanation of the fact that the product is seawater cultured pearl, does not comply with the requirements of this clause.

#### **4.2.9. "Cut cultured pearls"**

cultured pearls (5.51) that have been cut (5.54) shall be clearly described as such, e.g., cut cultured pearls.

#### **4.2.10. "Assembled/Composite cultured blister"**

Assembled/Composite cultured blisters shall be named and described in accordance with (5.12 and 5.52) and all other clauses herein.

#### **4.2.11. "Assembled/Composite cultured pearls"**

Assembled/Composite cultured pearls shall be named and described in accordance with (5.11) and all other clauses herein.

NOTE: The terms 'assembled' or 'composite' may be used interchangeably.

### 4.3. Modifications and/or treatments

#### 4.3.1. Cultured pearls

Cultured pearls (5.51) of all varieties (inclusive of those defined in 5.12, 5.17, 5.19, 5.52, 5.54, 5.71, 5.102, 5.111, 5.186, 5.198, 5.199, 5.206 and 5.213) may have been subsequently modified or treated by the processes set out in 4.3.1.1 and 4.3.1.2 which clauses shall apply at the points of sale (5.170).

##### 4.3.1.1. No requirement for declaration.

Cultured pearls (5.51) which have been only been drilled (5.61), cut (5.54), polished (5.171), buffed (5.29), peeled (5.154) and /or cleaned (5.40), do not require this information to be stated in their description at the point of sale (5.170).

##### 4.3.1.2. Requirement to declare

Cultured pearls (5.51) requiring specific information of their modifications or treatments to be given at the point of sale are all those not covered in clause (4.3.1.1). Those modifications, presently known, that require specific information to be stated at the point of sale are; bleaching (5.23), coating (5.41), cutting (5.54), dyeing (5.60), including tinting (5.212), filling (5.68), heating (5.89), irradiation (5.98), **luster enhancement** ( 5.110) oiling (5.143), waxing (5.218) and **working** (5.220).

When making reference, to a cultured pearl (5.51) that has been modified or treated as described in (4.3.1.2) above (except see Bleaching below), the words 'cultured pearl' or the 'colour description' shall immediately be preceded or followed by a word or words that describe the modification or treatment and shall, prior to the closing of the sale, require a verbal explanation that the cultured pearl has been modified or treated. In the event of a written presentation, the word describing the modification or treatment shall be of equal emphasis and prominence, with characters of the same size and colour as those of the name itself. Do not abbreviate.

Examples: White cultured pearl; Brown cultured pearl; Coated cultured pearl; Purple (dyed) cultured pearl; Filled cultured pearl; Yellow (heated) cultured pearl, Black (irradiated) cultured pearl; Oiled cultured pearl; and waxed cultured pearl.

Bleaching shall be identified on commercial documents by an asterisk immediately following the name of the cultured pearl to relate to a footnote that will identify that the cultured pearl is bleached.

Examples: .....cultured pearls\*

\*Cultured pearls grown in the Akoya pearl oyster are normally bleached to **modify or change** their appearance.

\*These cultured pearls have been bleached to **modify or change** their appearance.

If a cultured pearl (5.51) can be purchased without personally viewing the product, (e.g., direct mail, catalogs, online services, televised shopping programmes) explanation shall be made that it is a modified or treated cultured pearl in the presentation and/or description of the product prior to the close of the sale.

#### 4.3.2. Pearls

Natural pearls (5.134) of all varieties may have been subsequently modified or treated by the processes set out in Clauses 4.3.2.1 and 4.3.2.2 which shall apply at the points of sale (5.170).

##### 4.3.2.1. No requirement for declaration.

Natural pearls (5.134) which have only been drilled (5.61, 5.36), polished (5.171), buffed (5.29), peeled (5.154) and /or, cleaned (5.40), do not require this information to be stated in their description at the point of sale (5.170).

#### **4.3.2.2. Requirement to declare.**

Natural pearls (5.134) requiring specific information of their modifications or treatments to be given at the point of sale (5.170) are all those not covered in Clause (4.3.2.1). Those modifications, presently known, that require specific information to be stated at the point of sale are; bleaching (5.23), coating (5.41), cutting (5.55), dyeing (5.60), filling (5.68), irradiation (5.98), [luster enhancement \(5.110\)](#) oiling (5.143), tinting (5.212) waxing (5.218) and working (5.220).

When making reference, to a natural pearl (5.134) that has been modified or treated as described in (4.3.2.2) above (except see Bleaching below), the words 'natural pearl' or the 'colour description' shall immediately be preceded or followed by a word or words that describe the modification or treatment and shall, prior to the closing of the sale, require a verbal explanation that the natural pearl has been modified or treated. In the event of a written presentation, the word describing the modification or treatment shall be of equal emphasis and prominence, with characters of the same size and colour as those of the name itself. Do not abbreviate.

Examples: White natural pearl; Brown natural pearl; Coated natural pearl; Purple (dyed) natural pearl; Filled natural pearl; Yellow (heated) natural pearl, Black (irradiated) natural pearl; Oiled natural pearl; Waxed natural pearl; and worked natural pearl.

Bleaching shall be identified on commercial documents by an asterisk immediately following the name of the pearl to relate to a footnote that will identify that the pearl is bleached.

Example: .....natural pearls\*

\*These natural pearls have been bleached to [modify or change](#) their appearance.

If a natural pearl (5.134) can be purchased without personally viewing the product, (e.g., direct mail, catalogues, online services, televised shopping programmes) explanation shall be made that it is a modified or treated natural pearl in the presentation and/or description of the product prior to the close of the sale.

#### **4.3.3. Non-permanent modifications or treatments.**

Pearls and cultured pearls subjected to processes in clauses 4.3 that are not permanent shall require prior to the closing of the sale a declaration that the process is not permanent and that they require special care. See Annex C.

### **4.4. Nacre thickness**

[Nacre thickness is only relevant in the case of beaded cultured pearls \(5.17\). It refers strictly to the thickness of the nacre covering the shell bead and may not be correlated with nacre quality, i.e., the nacre coating, whether "thick" or "thin", may be of a variety of qualities.](#)

### **4.5. Imitations or simulants**

#### **4.5.1. "Cultured pearl-like", "semi-cultured-pearl", "faux pearls", "mother of pearl", etc.**

The terms "cultured pearl-like", "semi-cultured-pearl", "faux pearls", "mother of pearl" or any other similar expression shall not be used when referring to imitation (5.96) or simulated pearls (5.194).

#### **4.5.2. Commercial names**

The name of an imitation (5.96) or simulated (5.194) pearl shall not be similar to the name, or the sound of the name (neither entirely, nor abbreviated, nor by way of an allusion), of any natural or cultured pearl.

### 4.5.3. Geographical areas

Do not use the name of a geographical area associated with the production, processing or exporting of natural or cultured pearls in connection with and or referring to imitation pearls (5.96).

### 4.5.4. "Imitation" or "simulated"

Imitations (5.96) or simulants (5.194) of pearls and cultured pearls shall, prior to the closing of the sale, require a verbal explanation that it is an imitation or simulant of a pearl or cultured pearl, and, in the event of a written presentation shall be immediately preceded by the word 'imitation' or 'simulated', with equal emphasis and prominence, with characters of the same size and colour as those of the name itself, e.g., simulated pearl, imitation pearl etc. Do not abbreviate. If an imitation (5.96) or simulant (5.194) of a pearl or a cultured pearl can be purchased without personally viewing the product, (e.g., direct mail, catalogues, online services, televised shopping programmes, etc.) explanation shall be made that it is an imitation or simulant pearl in the presentation and/or description of the product prior to the close of the sale.

NOTE: The placing of an asterisk next to the word pearl, making reference to a footnote explanation of the fact that the product is an imitation, or simulant of a pearl or cultured pearl, does not comply with this clause.

### 4.5.5. Terms other than 'imitation', 'or 'simulated'

Do not use a qualifying term other than 'imitation', or 'simulated' to describe any product defined in (5.96), (5.194) and (4.5).

### 4.5.6. Trade Marks

When Trade Marks, brands, or fancy names are used to describe imitations of pearls or cultured pearls the use shall not conceal the fact that the product is an imitation, e.g., Trade Marks shall be used in the following format:

'Majorica Imitation Pearl', indicating that the article in question is an imitation of a pearl whose trademark is "Majorica".

## 4.6. Weight and measurement

### 4.6.1. Weight

the weight of cultured pearls shall be expressed in momme (5.128), kan (5.100) liang (5.106), carats (5.31) or grams (5.83). The weight of a natural pearl shall be expressed in pearl grains (5.82) or carats (5.31), four grains are equal to one metric carat.

NOTE: It is an unfair trade practice to misrepresent the weight of any natural or cultured pearl or to deceive as to the weight of any natural or cultured pearl. It is also an unfair trade practice to state or otherwise represent the weight of all natural or cultured pearls contained in any article unless such weight figure is accompanied with equal emphasis and prominence by the words "total weight", or words of similar meaning, so as to indicate clearly that the weight so stated or represented is that of all pearls in the article and not that of the center or largest one.

NOTE: The SI (Système International) generally uses the term *mass* (5.116) instead of *weight* (5.219). Mass is a measure of an object's inertial property, or the amount of matter it contains. Weight is a measure of the force exerted on an object by gravity or the force needed to support it.

### 4.6.2. Measurement

The measurements of a single natural (5.134) and/or cultured (5.51) pearl shall be expressed to the nearest one fourth (.25) of a millimetre for sizes below 10 mm and nearest one tenth (.10) of a millimetre for sizes 10 mm and above.

#### 4.6.2.1. Single pearls

The following measurements shall be contained in the description of a single pearl (5.150);

- round shape: average diameter
- fancy shape: maximum length, maximum diameter

#### **4.6.2.2. Graduated strands**

The measurements used to describe a graduated stand of natural and/or cultured pearls shall include the maximum diameter of the largest and the smallest. The measurements shall be expressed to the nearest one tenth (.10) of a millimetre.

#### **4.6.2.3. Uniform strands**

The measurements used to describe a uniform strand of natural and/or cultured pearls shall be expressed in one half (0.5) mm variations and stated as the minimum size, e.g., 6 - 6.5 mm.

## **5. Terms and definitions**

For the purposes of these CIBJO Standard/rules, the following terms and definitions apply;

### **5.1. Abalone**

ear-shaped marine gastropod (5.76) of the genus *Haliotis* (5.87), with nacre in multi-hues of blue, green, red and purple; the meat is edible; produces distinctive natural pearls (5.134), blisters (5.26) and cultured blisters (5.2) are produced in several regions (e.g., California, New Zealand); also known as paua (New Zealand) and awabi (Japan). (Mikkelsen, 2003).

### **5.2. Abalone Cultured Blister**

a cultured blister (5.52) from an abalone.(5.1) (Wentzel, 1998, Brown, 1994, Fankboner, 2001, Fankboner, 2002, Liu, 2002, Wentzel, 2004).

### **5.3. Abalone Pearl**

a natural pearl, usually coloured, found in gastropod molluscs of the *Haliotis* (5.87) genus in the Pacific, Atlantic and Indian Ocean (Kelly, 2003).

### **5.4. *Actinonaias pectorosa***

*Actinonaias pectorosa* (Conrad, 1834) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known the Pheasantshell and the Cumberland Mucket. It is a large roughly elliptical, thick-shelled mussel. The periostracum is golden brown with broken green rays; older individuals may become brown or black. The nacre may be bluish to creamy or silvery white with iridescence along the margins. This species is found in the Tennessee and Cumberland River basins. Lives in sand and gravel in fast current.

### **5.5. Adductor muscle**

the muscle attached to both valves of a bi-valve (5.18) that causes the shell to close when it contracts (Mikkelsen, 2003).

### **5.6. Akoya**

see (5.162, and 5.8) (Mikkelsen, 2003).

### **5.7. Akoya cultured pearl**

a beaded cultured pearl (5.17) produced in *Pinctada fucata (martensii)* (5.162), the Akoya pearl oyster.

## 5.8. Akoya pearl oyster

*Pinctada fucata (martensii)* (5.159 and 5.162) is used extensively for pearl culture in Japan, China and other areas. Akoya is the Japanese name for this pearl oyster (Mikkelsen, 2003).

## 5.9. *Amblema plicata*

*Amblema plicata* (Say, 1817) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the threeridge mussel, Blue-point, purple-tip, or fluter. The shell is elongated or rounded shell with ridges or folds on the posterior half. No sculpturing on the anterior end. Nacre pearly white, frequently stained, iridescent. Some individuals with a purple tint. Lives in small to large rivers and impoundments in mud, sand, or gravel (2005a, 2005b).

## 5.10. *Argopecten purpuratus*

the pectinid bivalve *Argopecten purpuratus* (Lamarck, 1819) or Chilean scallop, inhabits the Pacific Ocean, between the northern coast of Peru and central Chile, and has become an important commercial species. It is distributed along the Pacific coast between Arica (18°25"S) and Valparaiso. This species lives on sedimentary grounds in sheltered areas (Moragat, 2001). Produces scallop pearls similar to those from the Lion's Paw (5.108).

## 5.11. Assembled

see (5.44) composite.

## 5.12. Assembled Cultured Blister

assemblages of a purpose-grown cultured blisters (5.52) which have been cut from their shell, the original bead (5.140) upon which they grew being removed and the cavity filled with various types of man-made materials, and backed by a layer of shell, the assemblages being held together by an adhesive; commonly known as Mabe (5.111) or Hankei (5.88) and occur in both fresh and seawater environments. Not to be confused with cut cultured pearl (5.54). (Mikkelsen, 2003, Walker, 2001).

## 5.13. Atlantic Pearl Oyster

*Pinctada imbricata* (5.160); the pearl oyster native to the Caribbean and southeastern North America, which was exploited by Spanish pearl gatherers in the 16th and 17th centuries (Mikkelsen, 2003).

## 5.14. Australpearls

see south sea pearls (5.197).

## 5.15. Baroque

an irregularly shaped pearl (5.150) or cultured pearl (5.51). Baroque was originally a French adjective used to describe objects or pearls that were not symmetrical in shape. (Mikkelsen, 2003).

## 5.16. Bead

a sphere (usually) or other shape (occasionally) [formed from a nacreous material](#) used to accommodate the nacre (5.130) secreted from a graft (5.80) of mantle (5.112) tissue, that eventually forms the centre of a beaded cultured pearl (5.17).

## 5.17. Beaded Cultured Pearl

beaded cultured pearls are nacreous (5.131) formations secreted in the interior of a pearl oyster (5.151). A bead (5.16) is inserted into the mollusc along with a piece of mantle tissue which eventually forms the pearl sac (5.153) around the bead (5.16) which is in turn responsible for the secretion of nacreous layers. The outer

layers of beaded cultured pearls are concentric and composed of a complex scleroprotein named conchiolin (5.47) and of calcium carbonate (usually in the form of aragonite). See cultured pearls (5.51).

### **5.18. Bivalve**

a member of the molluscan class bivalvia, having a two-part shell, e.g., clam, oyster, mussel, and scallop (Mikkelsen, 2003).

### **5.19. Biwa Cultured Pearl**

a freshwater non-beaded cultured pearl produced from grafting alone, in Lake Biwa, Japan, using the freshwater bivalve mollusc *Hyriopsis schlegeli* (5.95). See also 5.213 (Mikkelsen, 2003).

### **5.20. Black Cultured Pearl**

natural colour, cultured black pearl produced using either *Pinctada margaritifera* (5.163) (the Tahitian cultured pearl (5.205)), *Pinctada mazatlanica* (5.165) or *Pteria sterna* (5.178) or other pearl oysters (5.151). Colour not caused by any subsequent processing.

### **5.21. Black-lipped Pearl Oyster**

*Pinctada margaritifera* (5.163), used extensively for pearl culturing in French Polynesia. The widest-ranging pearl oyster, it has a history of natural pearl gathering in the Red Sea, the Indian Ocean, throughout the Indo-Pacific islands, [Mexico](#) and Japan (Okinawa). Also *Pinctada mazatlanica* (5.165), Mexico and [Panama](#).

### **5.22. Black Pearl**

natural colour, natural black pearl produced by *Pinctada margaritifera* (5.163) *Pinctada mazatlanica* (5.165) or *Pteria sterna* (5.178). Colour not caused by any subsequent processing.

### **5.23. Bleaching**

to remove, lighten (make whiter) or alter (e.g., from black to brown/bronze) colour by means of chemical and/or physical agents or light. (Shouguo, 2001, Sanchez, 2004).

### **5.24. Blister cultured pearl**

a cultured pearl, (5.51) that has perforated the mantle of the mollusc and has adhered, through layers of nacreous or non nacreous secretions applied by the mollusc, to the inner wall of the shell. The subsequently formed layers of nacreous or non nacreous material are continuous with those of the inner wall of the shell. They are round or irregular in shape and the base of the blister cultured pearl may be worked (5.220).

### **5.25. Blister pearl**

a natural pearl, (5.134) that has perforated the mantle of the mollusc and has naturally adhered, through layers of nacreous or non nacreous secretions applied by the mollusc, to the inner wall of the shell. The subsequently formed layers of nacreous or non nacreous material are continuous with those of the inner wall of the shell. They are round or irregular in shape and are secreted without human intervention (Scarratt, 2001). The base of natural blister pearls may be worked (5.220).

### **5.26. Blisters**

a blister, is an internal protuberance of the shell caused by the intrusion of foreign bodies between the mantle and the shell. The interior may or may not be hollow and the secretion occurs naturally, without human intervention.

### **5.27. Bombay pearls**

commercial name for natural pearls chiefly from *Pinctada radiata* (5.166), fished from the Persian Gulf and Red Sea and exported through Bombay, India (Mikkelsen, 2003).

### **5.28. Bonding**

the union or cohesion brought about by the use of a substance or an agent that causes two or more objects or parts to cohere.

### **5.29. Buffing**

removing organic residues from the surfaces of natural and cultured pearls following harvest (see also polishing, 5.171).

### **5.30. Button-shaped pearl**

a symmetrical domed-shape pearl with or without a flattish bottom.

### **5.31. Carat**

unit of weight (5.219) (mass 5.112), equal to one fifth of a gram (200 milligrams) or 4 grains (5.82).

### **5.32. *Cassis madagascarensis***

of the family Cassidae, *Cassis madagascarensis* also known as the Emperor Helmet (5.64), is a large species with an almost flat spire, the body whorl has three rows of spiral blunted knobs and fine rounded axial ridges. The underside is peachy orange – reflecting the color of some pearls produced by this mollusk. The lip bears about 10 strong denticles and the columella bears strong white spiral ribs and folds, tinged between the dark brown or black. (Wye, 1991).

### **5.33. Cerclé**

see circled cultured pearl (5.38).

### **5.34. Ceylon Pearl Oyster**

*Pinctada radiata* (5.166), the pearl oyster with the longest history of sustained harvesting, native to the Gulf of Mannar, the Persian Gulf, and the Red Sea (Mikkelsen, 2003).

### **5.35. Chambered *nautilus***

a native of the tropical Pacific, a cousin of the octopus and is a living link with the past—little changed for more than 150 million years. The nautilus has more than 90 tentacles. These tentacles have grooves and ridges that grip food and pass it into the nautilus's mouth.

a nautilus swims using jet propulsion—it expels water from its mantle cavity through a siphon located near its head. By adjusting the direction of the siphon, a nautilus can swim forward, backward or sideways. See also *Coque de perle* (5.48).

### **5.36. Chinese drilling**

a term applied to natural pearls that are, in general, button-shaped and drilled (5.61) with two drill-holes. Both drill-holes penetrate the pearl from different points on the flat or less-round side and meet at a point within the pearl. The drilling was originally designed to facilitate pearls being used as buttons.



### **5.37. Choker**

a strand of pearls, cultured pearls or imitation pearls measuring 35-40cm (14 to 16 inches) in length.

### **5.38. Circled cultured pearl**

a cultured pearl (5.51) also known as *cerclé*, (5.33) with one or more concentric rings or indented grooves around it (Mikkelsen, 2003).

### **5.39. Clam pearl**

natural pearl from the giant and hard-shell clams, e.g., *Mercenaria mercenaria* (quahog) (5.125), *Tridacna gigas* (giant clam) (5.217) *et.al.*, (Shirai, 1994, Hill., 2004, 1977, Hardy, 1947).

### **5.40. Cleaning**

following its removal from a mollusc, a pearl maybe cleaned of debris by immersion in water that contains various detergents. This process does not include any bleaching chemicals and is known as 'cleaning'.

### **5.41. Coating**

an artificial layer of any natural or artificial substance spread over the surface, or part of the surface, of pearls for protection, colouration, increased luster and other optical phenomena (orient and overtone), decoration or to change appearance; a covering layer.

### **5.42. Collar**

a strand of pearls, cultured pearls or imitation pearls measuring 25-33cm (10 to 13 inches) in length.

### **5.43. Commercial Name**

a name assigned for marketing purposes.

### **5.44. Composite cultured pearl**

a cultured pearl composed of two or more, previously separate, parts or layers assembled by bonding (5.28) or other artificial methods. Their components may be natural and/or artificial.

### **5.45. Conch**

common name applied to some species of marine snails (i.e., gastropods 5.76) including the Queen Conch (*Strombus gigas*) (5.203), Horse Conch (*Pleuroploca gigantea*) (5.168), and the Emperor Helmet (*Cassis madagasgerensis*) (5.32) (see also 5.46). (Wye, 1991, Kamat, 2000).

### **5.46. Conch Pearl**

a non-nacreous pearl consisting of calcium carbonate arranged concentrically in a crossed lamellar microarchitecture. This structural characteristic usually produces a flame-like surface pattern and porcelaneous sheen. Such pearls are produced by various gastropods including the Queen Conch (*Strombus gigas*) (5.203), Horse Conch (*Pleuroploca gigantea*) (5.168), and the Emperor Helmet (*Cassis madagasgerensis*) (5.32). Also known as pink pearls. See also 5.45 conch. (Farn, 1977, Farn, 1979a, Fritsch, 1987, Moses, 2001, Rutland, 1971, Kornitzer, 1937, Sciaguato, 2004).

### **5.47. Conchiolin**

protein material (C<sub>32</sub>H<sub>48</sub>N<sub>2</sub>O<sub>11</sub>) constituting the organic portion of nacre (Mikkelsen, 2003).

#### **5.48. Coque de perle**

a shell section, cut from the curved nacreous surface of a polished Chambered *nautilus* (5.35), then finished like an assembled pearl. *Coques de perles* are often assembled into jewellery, to resemble large oval half-pearls (Farn, 1979b, Webster, 1966).

#### **5.49. Cristaria plicata**

or Cockscomb Pearl Mussel; the freshwater pearl mussel originally used for pearl culturing in both Japan and China. In Chinese, the name is zhou wen guan bang; in Japan, it is known as the Karasu mussel (Mikkelsen, 2003).

#### **5.50. Cultured**

the growth of biological material, microorganisms, animal tissue or pearls with human intervention, in specially controlled conditions.

#### **5.51. Cultured Pearls**

a pearl produced with or without the insertion by man of a bead (5.16) by grafting (5.81), followed by maintaining the mollusc in culture until the pearl is harvested. Cultured pearls are nacreous (5.131), unattached formations, secreted in the interior of pearl oysters (5.151) including *Pinctada maxima* (5.164), *Pinctada margaritifera* (5.163), *Pinctada mazatlanica* (5.165), *Pinctada fucata* (5.162), *Pteria penguin* (5.177), and *Pteria sterna* (5.178) as well as the freshwater mussels *Cristaria plicata* (5.49), *Hyriopsis schlegeli* (5.95) and *Hyriopsis cumingii* (5.94). The surfaces of cultured pearls are composed of nacre (5.130); laid down in concentric layers while within the pearl sac (5.153). The secretion of the nacreous layers from the mantle (5.112) of the pearl oyster (5.151) is natural process instigated and partially controlled by man. This applies to all cultured pearls whether grown with or without a bead (5.16). The term 'cultured' is applied to pearls that have been cultured (5.50) it is not applied to other pearls.

#### **5.52. Cultured Blister**

a nacreous cultured blister attached to the shell of a mollusc. A cultured blister is formed following the insertion by man of a bead (5.16) that is or becomes attached to or lies against the inside of the shell of a mollusc. The mantle tissue (5.112) secretes layers of nacre on the bead surface. These nacreous layers form over the inserted bead and continue onto the interior of the shell, making one cohesive whole between the shell, the bead and the newly formed nacreous layers. Following harvest, the cultured blister is cut from the shell, the bead remaining in position.

#### **5.53. Cumberlandia monodonta**

*Cumberlandia monodonta* (Say, 1829) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known Spectaclecase. It is an elongate shell, usually pinched in the middle, dark brown to black, with poorly developed teeth. Nacre is white, iridescent. Length to 8 inches (20.3 cm). It lives in large rivers with swiftly flowing water, among boulders in patches of sand, cobble, or gravel in areas where current is reduced.

#### **5.54. Cut Cultured Pearls**

cultured pearls (5.51) that have been cut to produce a flat base.

#### **5.55. Cut Pearls**

pearls (5.150) that have been cut to produce a flat base.

### **5.56. *Cyclonaias tuberculata***

*Cyclonaias tuberculata* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Purple Wartyback, Missouri mapleleaf, purple pimpleback, or deerhorn. It has a rounded shell with a fairly prominent wing, beak covered with fine wavy sculpturing, no green stripe on the umbo, purple nacre. Deep and compressed beak cavity. Nacre usually deep purple, occasionally white with a purple tinge. Lives in medium to large rivers in gravel or mixed sand and gravel.

### **5.57. *Cyrtonaias tampicoensis***

*Cyrtonaias tampicoensis* or the Tampico pearlymussel has no significant external shell sculpturing and may reach over 130mm in shell length. Colouration varies from yellowish-brown to dark brown and black. Internally, nacre is typically purple, but may be multicoloured. Pearls are the same colours as the nacre. Their habitat ranges from relatively small streams to large reservoirs in waters less than 20 feet deep in Texas USA (Howells, 2005).

### **5.58. Cyst pearls**

natural pearls (5.134) that occur in a pearl-sac (5.153) and not in direct contact with the shell of a pearl-producing mollusc.

### **5.59. Dobo pearls**

commercial name for cultured pearls traded and exported through Dobo in Indonesia.

### **5.60. Dyeing**

any colour caused artificially by the application of a dye to pearls.

### **5.61. Drilled**

a pearl with a cylindrical hole engineered to enter at one point and exit on the opposite side. See also part-drilled (5.149) and Chinese drilled (5.36).

### **5.62. *Ellipsaria lineolata***

*Ellipsaria lineolata* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Butterfly. It has a triangular, flattened shell, sharply angled posterior ridge, yellowish brown, with broken brown rays. Nacre white, iridescent. Lives in large rivers in sand or gravel. Length to 4 inches (10.2 cm).

### **5.63. *Elliptio crassidens***

*Elliptio crassidens* (Lamarck, 1819) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Elephant-ear, Mule's ear, or blue ham. It is a heavy, solid, and triangular shell with dark brown to black periostracum. Nacre colour is variable, usually purple, occasionally pink or white. Lives in large rivers in mud, sand, or fine gravel. Length to 6 inches (15.2 cm).

### **5.64. Emperor Helmet**

see *Cassis madagascarensis* (5.32) (Wye, 1991).

### **5.65. Essence d'orient**

French term for a solution of powdered fish scales in resin or other coating, used for manufacturing imitation pearls (5.96) (Mikkelsen, 2003).

### **5.66. Faceted cultured pearls**

cultured pearls (5.51) with multiple flat, convex or concave facets that have been polished on their surface (Hurwit, 2001).

### **5.67. Faceting**

a polishing technique applied to cultured pearls (5.51), to obtain multiple facets.

### **5.68. Filling**

a substance that occupies a whole or part of a void in a pearl.

### **5.69. Fine pearl**

see natural pearl (5.134).

### **5.70. Freshwater**

a body of water that is non-saline, e.g., rivers, lakes, ponds and marshes.

### **5.71. Freshwater Cultured Pearl**

cultured pearls (5.51) produced in molluscs (mussels) in freshwater, e.g., *Hyriopsis schlegelii* (5.95), *Hyriopsis cumingii* (5.94). (Mikkelsen, 2003, Sweeny, 1982, Jobbins, 1993, Hänni, 2000, Scarratt, 2000, Akamatsu, 2001).

### **5.72. Freshwater Pearl**

a natural pearl (5.134) produced by a bi-valve (5.18) mollusc (5.127) living in freshwater (5.70).

### **5.73. Frequency**

the rate of occurrence (according to current knowledge) for a treatment being applied to pearls including bleaching, bonding, dyeing, irradiating, oiling, staining, tinting and/or waxing. Expressed as None: Unknown: Rarely: Uncommon: Occasionally: Common: Usually: or Always: in Annex A.

### **5.74. *Fusconaia ebena***

*Fusconaia ebena* (Lea, 1831) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as Ebonyshell; It is a round, heavy, thick, brown or black shell without rays or pustules. Beak cavity is very deep. Length to 10.2 cm (4 inches). Lives in large rivers in sand and gravel. Nacre pearly white and iridescent.

### **5.75. *Fusconaia flava***

*Fusconaia flava* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Wabash Pigtoe or just Pigtoe; it is a triangular shell with a shallow sulcus usually present on the side, rough clothlike periostracum, deep beak cavity. Nacre white, or tinged with salmon and iridescent. Lives in creeks to large rivers in mud, sand, or gravel.

### **5.76. Gastropod**

a univalve mollusc that has a head with eyes; includes land and sea snails. (See e.g., 5.45, 5.46 and 5.124) (Wye, 1991).

### **5.77. Gold-lipped Pearl Oyster**

a variety of *Pinctada maxima* (5.164), used extensively for pearl culturing in Australia, Myanmar, Indonesia, the Philippines and Thailand; see also Silver-lipped Pearl Oyster (5.193).

### **5.78. Gonad**

the sex or reproductive organ.

### **5.79. Gonad pearl**

a horn or cusp-shaped natural pearl common in abalone (5.1), formed in the similarly shaped reproductive organ or gonad (5.78).

### **5.80. Graft**

a piece of epithelium tissue cut from the mantle (5.112) of a nacre (5.130) -producing mollusc that is inserted into the body of another nacre producing mollusc (5.127) (usually of the same species) to initiate the growth of a cultured pearl (5.51).

### **5.81. Grafting**

the action of introducing tissue cut from the mantle (5.112) of a nacre (5.130) -producing mollusc into the body of another nacre-producing mollusc (5.127) (usually of the same species) to initiate the growth of a cultured pearl (5.51). Grafting can be done into the recipient oyster's mantle (5.112 ) or gonad (5.78) – mantle-grown cultured pearls or gonad-grown cultured pearls.

### **5.82. Grain**

0.25 of one carat (ct) (0.25ct, equivalent to 0.05 gram or 50 milligrams).

### **5.83. Gram**

1/1000 of a kilogram (see 5.103).

### **5.84. Half composite cultured pearl**

see 5.44

### **5.85. Half cultured blister**

see 5.52.

### **5.86. Half cultured pearl**

see 5.54.

### **5.87. *Haliotis***

*haliotidae* or abalones (5.1) are a large family of gastropods that are also known as ormers or sea ears in various localities. The shape is consistently flat with little evidence of a spire; they are either oval or round and possess a series of holes on the body whorl. The interiors are iridescent and can be very colourful. Habitat ranges from low tide zones to some hundreds of feet depth (Wye, 1991).

### **5.88. Hankei**

Japanese trade [term](#) for cultured blister (5.52).

### **5.89. Heating**

to heat a pearl or cultured pearl to a temperature that alters its appearance. (Elen, 2001, Elen, 2002, Elen, 2003).

### **5.90. Hinge pearl**

a natural pearl of irregular and usually elongated shape, found near the hinge of bi-valve (5.18) molluscs – not cut from the shell (Du Toit, 1997).

### **5.91. Hollow cultured pearl**

a cultured pearl (5.51) with a large enclosed cavity.

### **5.92. Hollow pearl**

a pearl (5.150) with a large enclosed cavity.

### **5.93. Horse Conch**

see *Pleuroploca gigantea* (5.168) (Wye, 1991).

### **5.94. *Hyriopsis cumingii***

*Hyriopsis cumingii* (Lea, 1852) or triangleshell pearl mussel ranges naturally in China. It has a thicker shell than the Cockscomb (*Cristaria plicata* 5.49), with pink to peach-coloured nacre. Both natural and cultured Triangleshell pearls occur in a wide range of colours, from white to pink, lavender and deep rose. (Mikkelsen, 2003, Akamatsu, 2001).

### **5.95. *Hyriopsis schlegeli***

or Biwa pearly mussel used to produce non-beaded cultured pearls in Lake Biwa Japan, (Farn, 1986).

### **5.96. Imitation Pearls**

products that simulate the appearance of natural (5.134 and 5.150) or cultured pearls (5.51) without possessing their chemical composition and/or their physical properties and/or their structure (5.51, 5.150). Any product which is pearl-like in appearance is an imitation pearl if its outer layers are not completely composed of a natural substance secreted in the interior of the productive molluscs (see Simulated 5.194).

### **5.97. Invertebrate**

an animal without an internal backbone. Examples are snails and clams (molluscs), crabs and shrimp (crustaceans), starfish and sea urchins (echinoderms), worms (annelids), corals and sea fans (cnidarians or coelenterates).

### **5.98. Irradiation**

exposing pearls or cultured pearls to radiation.

### **5.99. Irradiating**

to expose to or process with radiation.

### **5.100. Kan**

a unit of pearl weight equal to 1,000 momme (5.128) or 3.75 kilograms.

### **5.101. Keshi**

a Japanese trade term meaning a small natural or cultured pearl.

### 5.102. Keshi Cultured Pearl

a trade term that designates a non-beaded cultured pearl (5.137) formed accidentally or intentionally by human intervention in marine pearl oysters such as the Akoya oyster (*Pinctada fucata* 5.159), Silver/Gold lipped oyster (5.199) (*Pinctada maxima* 5.164) and Black lipped oyster (*Pinctada margaritifera* 5.163) and is a by-product of the culturing process. The creation results from the formation of a pearl sac either following injury of the mantle rim upon handling, from a partial piece of the inserted (transplanted) mantle tissue (5.112) or the whole inserted piece (5.156) following the rejection of a bead (5.16). See also South Sea Keshi Cultured Pearl (5.199). (Hänni, 2006).

### 5.103. Kilogram

the kilogram is the unit of mass; it is equal to the mass of the international prototype of the kilogram.

### 5.104. La Paz Pearl Oyster

*Pinctada mazatlanica* (5.165), from the eastern Pacific Ocean, presently cultured in the Gulf of California for blister and cultured pearls (5.51).

### 5.105. *Lasmigona complanata*

*Lasmigona complanata* (Barnes, 1823) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the White Heelsplitter, the Pancake, razorback, elephant-ear, or hackle-back. It is a large, rounded, compressed, relatively thin shell, bluntly pointed at the posterior end; dark brown or black periostracum, double-looped beak sculpture. Nacre bluish white or white, iridescent. Lives in pools or sluggish streams with a mud, sand, or fine gravel bottom.

### 5.106. Liang

Imperial Chinese unit of weight equal to 250 carats (5.31).

### 5.107. *Ligumia recta*

*Ligumia recta* (Lamarck, 1819) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Black sandshell, Black sand mussel, long John, honest John, sow's ear, or lady's slipper. It is an elongated shell, pointed on the posterior end, smooth surface, usually dark brown to black. Nacre variable from white, pink, and salmon to deep purple, iridescent. Length to 8 inches (20.3 cm).

### 5.108. Lion's Paw

of the many scallops there are three bearing the common name Lion's Paw, one of these is the exceedingly rare *Nodipecten magnificus* (Sowerby, 1835) which is largely restricted to the Galapagos Islands. The other two are *Nodipecten (Lyropecten) nodosus* (Atlantic Lion's Paw) L. 1758 and *Nodipecten (Lyropecten) subnodosus* (Pacific Lion's Paw also known as *Mano de Leon*) Sowerby 1835, the largest pectinid in tropical waters. *N. nodosus* is found in the seas of South-eastern USA to Brazil and *N. subnodosus* in the seas of Western Central America at depths that vary from 25 to 150 meters. Together the shell colours are exceptional both in their variety and depth. The outer surface of the shell may be several shades of brown, sometimes described as chocolate brown and yellow to orange while the interior varies from pearly white to shades of purple and brown. The outer surface of the *N. nodosus* shell most often displays several rows of rounded nodular protuberances running down about eight rounded ribs (although many from the southern Caribbean are smooth, potentially differentiating it from *N. subnodosus* which have no such protuberances). Both the Atlantic and Pacific Lion's Paws have fan-shaped (typical of scallops in general) equal valves with unequal ears. Lion's Paw scallops may produce distinctive natural non-nacreous pearls (Scarratt, 2004).

### 5.109. Lustre

the quality and quantity of light a pearl reflects from its surface or near surface.

### 5.110. Lustre enhancement

Any treatment or process applied to enhance the lustre of a natural or cultured pearl, e.g., “*maeshori*”

#### 5.111. Mabe

Japanese trade term designating an assembled cultured blister (5.12) from *Pteria penguin* (5.177), (Scarratt, 1992).

#### 5.112. Mantle

the mantle is an organ found in molluscs. It is the dorsal body wall covering the main body, or visceral mass. The outer epidermis (surface towards the shell) of this organ secretes calcium carbonate to create a shell.

#### 5.113. Margaritifera

the taxonomic name applied to one of two entities: (1) the current genus-name applied to one group of freshwater pearl mussels, including the common pearl-producing mussel of Europe and North America, *Margaritifera margaritifera* (5.114); (2) as a species-name, that for the Black-lipped Pearl Oyster (*Pinctada margaritifera*) (5.21 and 5.163). This word margarita is the Latin term for pearl deriving from the Greek *margaros* pearl oyster.

#### 5.114. *Margaritifera margaritifera*

the freshwater pearl mussel *Margaritifera margaritifera* grows to 140 mm in length, and burrows into sandy substrates, often between boulders and pebbles, in fast-flowing rivers and streams. It requires cool, well-oxygenated soft water free of pollution or turbidity. The mussel spends its larval, or glochidial, stage attached to the gills of salmonid fishes. The larvae attach themselves during mid to late summer and drop off the following spring to settle in the riverbed gravel where they grow to adulthood. Distributed throughout Europe and North America.

#### 5.115. Marine Gastropod

a univalve mollusc that has a head and eyes living in the sea. See 5.45, 5.46, 5.124, 5.115, 5.119, 5.120, 5.121, 5.122 and 5.123.

#### 5.116. Mass

see weight (5.219), and (5.82, 5.83, 5.100, 5.103 and 5.128). The SI (Système International) generally uses the term *mass* (5.116) instead of *weight* (5.219). Mass is a measure of an object's inertial property, or the amount of matter it contains. Weight is a measure of the force exerted on an object by gravity or the force needed to support it.

#### 5.117. Matinee

a strand of pearls, cultured pearls or imitation pearls measuring 50-60cm (20 to 24 inches) in length.

#### 5.118. *Megalonaias nervosa*

*Megalonaias nervosa* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Washboard, Bald-pate, or board. It is a large, black shell, heavily sculptured with V-shaped ridges in the front and large folds on the sides and back, particularly in smaller shells. Nacre white, often with purple or copper-coloured blotches, iridescent. Lives primarily in large rivers with a good current; occasionally medium-sized streams in mud, sand, or gravel. Has been used for the manufacture of shell beads that form the nucleus of beaded cultured pearls (5.17).



#### **5.119. *Melo aethiopica***

a marine gastropod (5.115) and one of the melo volutes; this species lives principally in Indonesian waters but is generally distributed from Java in the west to Papua New Guinea in the east. Their habitat is reportedly thick volcanic sand in shallow waters. Dimensions are between 200 and 250mm in length, with a largest reported size of 348mm. The protoconch is usually bright yellow in colour, but generally the shell is a light brown or mahogany. There are 14 to 18 subsutural spines per whorl. There are three columella plaits. Sometimes there is a creamy yellow spiral band in the middle of the whorls, and young shells may have a pattern of small dark blotches. There is no regular fishing. *Melo aethiopica* is the bailer shell used in Papua New Guinea to make the traditional jewellery. See also *Melo* pearl (5.124). (Poppe G.T., 1992).

#### **5.120. *Melo amphora***

a marine gastropod (5.115) and one of the melo volutes; this species lives all along the northern coast of Australia and the southern coast of New Guinea. Their habitat is on the sand and sand-mud bottoms from the shore and down to 10m., deep. Dimensions are between 300 and 468mm in length, with the largest registered size of 524mm. The protoconch is wide and cream coloured, and the spines are long and straight but only on the first 2.5 whorls. The best distinguishing character is the absence of spines on the last adult whorl. There are three strong columella plaits. The range of *Melo amphora* and *Melo aethiopica* coincide with each other and it may be that *Melo amphora* is a southern variant of *Melo aethiopica* (Poppe G.T., 1992). See also *Melo* pearl (5.124).

#### **5.121. *Melo broderipii***

a marine gastropod (5.115) and one of the melo volutes; this species lives mainly in the Philippines but is also recorded for New Guinea. Their habitat is on sand and mud bottoms from the shore to about 10m., deep. Dimensions are between 250 and 350mm in length, and the registered largest size is 371mm. There are 20 to 25 spines per whorl and the columella has four plaits. Base colour is pale cream brown. Most shells have dark chocolate brown flecks that become scarcer in the last whorl, (Poppe G.T., 1992). See also *Melo* pearl (5.124).

#### **5.122. *Melo georginae***

a marine gastropod (5.115) and one of the melo volutes; this species is limited to the coast of southern Queensland, Australia. Their habitat is between 2 and 90m. deep on sand bottoms. Dimensions are between 200 and 300mm in length. The protoconch is pink and the shell on a pinkish white or cream background, has wide areas of vivid orange which form thick irregular reticulations which outline white triangles. Two dark spiral bands stand out against the yellow-orange colour of the last adult whorl. This species lives deeper than any other member of the genus. (Poppe G.T., 1992). See also *Melo* pearl (5.124).

#### **5.123. *Melo melo***

a marine gastropod (5.115) and one of the melo volutes; this species lives from the South China Sea, south and west to Singapore and the Andaman Sea. Their habitat is from the shore down to 70m deep on mud bottoms. Dimensions are between 150 and 275mm in length with a reported record size of 362mm. The protoconch is covered by the last whorl, there are no spines and three columella plaits. Generally there are two or three bands of dispersed dark flecks, which are rarer and more loosely spaced on the last whorl, (Poppe G.T., 1992). See also *Melo* pearl (5.124).

#### **5.124. *Melo Pearl***

a natural non nacreous pearl (5.134) found in one of the melo volutes (5.119, 5.120, 5.121, 5.122, 5.123) (Sciaguato, 2004, Traub, 1999, Traub, 1997).

### **5.125. *Mercenaria mercenaria***

clam species *Mercenaria mercenaria* (Linnaeus, 1758) or *Venus mercenaria*, (class; bivalvia, order; Veneroida, family; Veneridae, genus; *Mercenaria*) is variously known as the northern quahog (its Indian name pronounced CO hawg), hardshell, littleneck, cherrystone, or chowder clam, is common, commercially important and found on the east coast of North America where it lives in soft sediments in shallow water. Produces clam pearls (5.39) in various shades of purple. Burrows shallowly in sediments of either mud or sand. It is among the most commercially important species of invertebrate. Like other clams, it is a filter feeder. *Mercenaria mercenaria* has a large, heavy shell that ranges from being a pale brownish colour to shades of grey and white. The exterior of the shell, except nearest the umbo is covered with a series of growth rings. The interior of the shell is coloured a deep purple around the posterior edge and hinge.

### **5.126. Modification**

see Treatment 5.215.

### **5.127. Mollusc**

an invertebrate (5.97) animal of the phylum Mollusca.

### **5.128. Momme**

unit of pearl weight, equal to 0.75 ounces or 3.75 grams; 1,000 momme = 1 kan (5.100). This unit was most frequently applied by the Japanese pearl industry to cultured pearls, sometimes spelt *monme*.

### **5.129. Mother-of-pearl**

the smooth, hard, iridescent coating on the inner surface of some species of molluscs, composed of microscopic crystals of aragonite and/or calcite (a form of calcium carbonate) deposited in thin layers with organic conchiolin; scientifically known as nacre (5.130). Usually pearls produced by the particular mollusc have the same colour composition and general quality as the mother-of-pearl of the particular mollusc.

### **5.130. Nacre**

biogenic material of nacreous natural (5.133) and cultured (5.50) pearls. Nacre is composed of layers of microscopic platelets of aragonite and/or calcite (calcium carbonate), bound together by a fine network of a complex scleroprotein called conchiolin (5.47). This characteristic structure produces optical effects (orient, overtone) from within the pearl. Nacre is secreted from the mantle (5.112) of pearl oysters (5.151) and some gastropods.

### **5.131. Nacreous**

composed of nacre (5.130).

### **5.132. Nacre thickness**

the thickness of nacre (5.130) overlaying the bead (5.16) in a beaded cultured pearl, usually expressed as an average in millimetres.

### **5.133. Natural**

substances which have been formed completely by nature without human interference and subsequently modified, if at all, only by means set out in (4.3.2.1).

### **5.134. Natural Pearls**

natural pearl formations secreted in the interior of molluscs without human intervention. They are composed of a complex scleroprotein named conchiolin (5.47) and of calcium carbonate in the form of aragonite and or

calcite arranged in concentric layers. Natural pearls may be nacreous (5.131) or non-nacreous. (5.138). See also 5.146.

**5.135. *Nodipecten (Lyropecten) nodosus***

see scallop and Lion's paw, (5.188 and 5.108).

**5.136. *Nodipecten (Lyropecten) subnodosus***

see scallop and Lion's paw, (5.188 and 5.108).

**5.137. Non-beaded cultured pearl**

a cultured pearl (5.51) grown without a bead (5.16).

**5.138. Non-nacreous pearls**

natural pearls without a nacreous surface layer, e.g., clam pearls (5.39), conch pearls (5.46), melo pearls (5.124), some pen pearls (5.155) and scallop pearls (5.189).

NOTE: Currently there are no non-nacreous cultured pearls

**5.139. Non-nucleated cultured pearl**

a term used in the trade for a non-beaded (5.137) and keshi (5.102) cultured pearls.

**5.140. Nucleus**

a bead (5.16) around which a beaded cultured pearl (5.17) is formed.

**5.141. *Objet d'art***

an object considered to be of artistic worth.

**5.142. *Obliquaria reflexa***

*Obliquaria reflexaria* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as Threehorn Wartyback, just Three Horned or Hornyback, three dot, or three knot. It has large knobs that alternate from side to side that will distinguish this mussel from all other species found in the Midwest. Lives in large rivers in sand or gravel; may be locally abundant in impoundments.

**5.143. Oiling**

a process, called '*decraqueler*', sometimes applied to natural and cultured pearls, whereby the surface of pearls are soaked in warm oil; to diminish the appearance of cracks.

**5.144. Opera**

a strand of pearls measuring 70-90cm (28 to 35 inches) in length.

**5.145. Orient**

an optical phenomenon caused by the interference and diffraction of light from within the surface of some nacreous pearls; producing delicate shades of iridescent colours.

**5.146. Oriental Pearl**

old commercial name for some natural saltwater pearls (5.134).

#### **5.147. Overtone**

the presence of an additional colour on a pearl or pearl product, usually pink, gold, green, or blue.

#### **5.148. Oyster**

a common name applied to a number of bi-valved molluscs (5.18) (Kai in Japanese), some of them not closely related. Pearl oysters are of the family *Pteriidae*. True (edible) oysters are of the family *Ostreidae*. Tree oysters are of the family *Isognomonidae*.

#### **5.149. Part-Drilled**

a pearl with a cylindrical hole engineered to enter at one point but which does not exit. Sometimes known as half-drilled.

#### **5.150. Pearl**

a natural pearl formation secreted in the interior of molluscs without human intervention. They are composed of a complex scleroprotein named conchiolin (5.47) and of calcium carbonate in the form of aragonite and or calcite arranged in concentric layers. Natural pearls may be nacreous (5.131) or non-nacreous. (5.138).

#### **5.151. Pearl Oyster**

marine bivalves classified in the family *Pteriidae* and the genera *Pinctada* and *Pteria*, e.g., *Pinctada maxima* (5.164), *Pinctada margaritifera* (5.163), *Pinctada mazatlanica* (5.165), *Pinctada fucata (martensii)* (5.162 and 5.159 ), *Pinctada imbricata* (5.160), *Pinctada radiata* (5.166), *Pinctada maculata* (5.161) ,*Pteria penguin* (5.177), and *Pteria sterna* (5.178).

#### **5.152. Pearl Polishing**

the action of producing a polish; a technique applied to pearls and cultured pearls to remove some surface blemishes and increase lustre (5.171).

#### **5.153. Pearl-sac**

a pearl-sac is derived from the internal or external layer of the epithelium of the mantle (5.112) or of the gill plates. The epithelial cells of the pearl-sac secretes the nacre (5.130) which becomes deposited over the foreign body, forming a pearl in due course of time.

#### **5.154. Peeling**

a technique applied to lightly remove layers of nacre (5.130) from a pearl. see also working (5.220).

#### **5.155. Pen Pearl**

see Pinna Pearl (5.169).

#### **5.156. Piece**

a "piece" of mantle tissue (5.112).

#### **5.157. Piece holder**

tool to catch the graft (5.80) or mantle tissue (5.112) piece (5.156) for insertion during the grafting (5.81) procedure; also known as piece needle (5.158).

#### **5.158. Piece needle**

see piece holder (5.157).

#### **5.159. *Pinctada fucata***

*Pinctada fucata* (Gould, 1857) is the Akoya (5.6) pearl oyster (5.8), known in Japan as *Pinctada martensii* (5.162). It is sometimes considered a subspecies of *Pinctada imbricata* (5.160). The shell is of a medium size and is rather inflated and fragile. The exterior is rough and is covered with layers of greyish purple lamellae which extend over the margins. The byssal notch lies below a small winged projection of the hinge line. Its habitat ranges from Japan to China and Vietnam (Wye, 1991, Landman, 2001).

#### **5.160. *Pinctada imbricata***

*Pinctada imbricata* (Röding, 1798) or the Atlantic Pearl Oyster, ranges naturally in the western Atlantic from Bermuda and Florida to northern South America. It is the source of Venezuelan pearls and also of Columbus's pearls (Mikkelsen, 2003).

#### **5.161. *Pinctada maculata***

small pearl oyster or *pipi* is widespread throughout French Polynesia and the Cook Islands.

#### **5.162. *Pinctada martensii***

see *Pinctada fucata* (5.159) and Akoya (5.6) oyster (5.8). Also referred to as Martins Pearl Oyster, the shell is of a medium size and is rather inflated and fragile. The exterior is rough and is covered with layers of greyish purple lamellae which extend over the margins. The byssal notch lies below a small winged projection of the hinge line. Its habitat ranges from Japan to China and Vietnam (Wye, 1991).

#### **5.163. *Pinctada margaritifera***

a large oyster that has equal compressed valves with a rich silver grey nacreous interior edged with greyish black. The exterior is formed from concentric layers of flaky green and grey lamellae. The source of natural and cultured, naturally coloured, black pearls from French Polynesia (5.205, 5.206 and 5.208), the Cook Islands, Okinawa and other South Sea islands (Wye, 1991).

#### **5.164. *Pinctada maxima***

the silver or golden lipped pearl oyster (*Pinctada maxima*) is the largest of the pearl oysters and its high quality nacre has resulted in its wide use in the mother-of-pearl (5.129) industry. Used extensively to produce cultured pearls in Australia, Indonesia, Myanmar Philippines and elsewhere in the South Seas (5.196). (Mikkelsen, 2003, Wye, 1991).

#### **5.165. *Pinctada mazatlanica***

*Pinctada mazatlanica* (Hanley, 1855), the La Paz Pearl Oyster, or the [Panamic Black-Lipped Pearl Oyster](#). A medium sized oyster (18 cm) with equally compressed valves with a rich silver grey nacreous interior edged with a green or golden sheen. The exterior is formed from concentric layers of flaky light-brown and green lamellae. Habitat ranges from inside the Gulf of California to Peru. Evidence of the use of ornaments made from these shells was found deposited inside the excavations of the Templo Mayor (Mexica or Aztec Empire) in Mexico City. Efforts were given to the pearl fisheries in the Gulf of California (also known as the Sea of Cortez), from the start of the Colonial period until 1940. These fisheries gave abundant supplies of naturally coloured pearls, from light-grey to black, with many intermediate tones of pink, gold and green. This species was the first one to be used farmed commercially for the production of natural pearls in La Paz, Baja California Sur, Mexico. (Hurwit, K. 2000, Gomelsky, V. 2001, McLaurin, D. 2002, McLaurin, D. & E. Arizmendi, 2002)

#### **5.166. *Pinctada radiata***

*Pinctada radiata* (Leache, 1814), or the Ceylon Pearl Oyster (5.34), is sometimes considered a variety of *Pinctada imbricata*. Habitat ranges through the eastern Mediterranean, Red Sea, Persian Gulf and the Indian Ocean.

**5.167. *Placopectin magellanicus***

see scallop, (5.188).

**5.168. *Pleuroploca gigantea***

also known as the Florida Horse Conch, the largest of the tulip shells. The spire is tall and the whorls, the shoulders of which have blunt rounded knobs, are angular. Shells are generally beige to light brown with a pale orange aperture and the non nacreous pearls it produces are similarly coloured. Lives in shallow sub tidal waters (Wye, 1991).

**5.169. Pinna pearl**

a natural orange non-nacreous or silvery 'nacreous' pearl, produced by a pen shell ( see also pen pearl 5.155), a marine bivalve mollusc of the genus *Pinna* or *Atrina* (family Pinnidae) (Wentzel, 2005).

**5.170. Point of Sale**

the point in time when items for sale are sold and payment terms are agreed upon.

**5.171. Polishing**

the action of producing a polish; a technique applied to natural and cultured pearls to remove some surface blemishes and increase lustre. (See also 5.152).

**5.172. *Potamilis purpuratus***

is a natural pearl producing freshwater bivalve mollusc found in the USA. It has an elongate and rectangular shell, inflated, dark green to black, with a purple or pink nacre. Inhabits large rivers e.g., Mississippi, in mud or mixed mud and gravel. Common names; Bloofer, blue mucket, and purple pocketbook. .

**5.173. Princess**

a strand of pearls, cultured pearls or imitation pearls measuring 43-48cm (17 to 19 inches) in length.

**5.174. Process**

a pearl (5.150) or cultured pearl (5.51) that has been drilled ( 5.61 and 5.36 ), cut (5.54 and 5.55), polished (5.152), buffed (5.29) , peeled (5.154), worked (5.220) or cleaned (5.40).

**5.175. *Proptera alata***

*Proptera alata* (Say, 1817) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the Pink Heelsplitter, Purple Heelsplitter, pancake, or hatchet-back. It has an elongate and rectangular shell, well-developed posterior wing, dark green to dark brown, with a purple or pink nacre. Length to 8 inches (20.3 cm). Lives in medium to large rivers in mud or mixed mud, sand, and gravel.

**5.176. *Proptera purpurata***

*Proptera purpurata* (Lamarck, 1819) (synonym) accepted scientific name *Potamilus purpuratus* (Lamarck, 1819) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as the bleufer or purple pocketbook.

**5.177. *Pteria penguin***

the Mabé (5.111) pearl oyster also known as black-winged pearl oyster. An ovate and fairly fragile shell, it has unequal valves, the upper or right valve being more inflated. The oyster has a characteristic extension to the hinge line (Mikkelsen, 2003, Hurwit, 2003, Mao, 2004).

### **5.178. *Pteria sterna***

the rainbow-lipped pearl oyster (*Pteria sterna*) also known as the western winged pearl oyster is a winged oyster with two unequal sized lateral extensions. The shell appears purplish-brown to silver grey and is moderately thin, usually growing to 14 cm in length. The exterior is formed from concentric layers of brown to black lamellae. Habitat ranges from the eastern Pacific side of Baja California (Mexico), inside the Gulf of California and down to Peru. Evidence of the use of ornaments made from these shells was found deposited in an ancient burial site in the coastal part of the State of Sonora. Efforts were given to the pearl fisheries of the Gulf of California (also known as the Sea of Cortez), from the start of the Colonial period until 1940. These fisheries gave abundant supplies of naturally coloured pearls, from light-grey to dark-purple, with many intermediate tones of pink, gold and green (Gomelsky, 2001, Hurwit, 2000, McLaurin, 2002, Moreno, 2002).

### **5.179. *Quadrula metanevra***

*Quadrula metanevra* (Rafinesque, 1820) is a natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as Monkey face or Knobbed rock shell; Rounded or squared shell with large knobs along the posterior ridge and a distinct indentation on the posterior margin that looks like a chimpanzee in profile. Often with distinctive zigzag markings on the shell. The shell is thick, rounded or rectangular, and moderately inflated. Length to 4 inches (10.2 cm). Lives in medium to large rivers in gravel or mixed sand and gravel.

### **5.180. *Quadrula nodulata***

*Quadrula nodulata* (Rafinesque, 1822) is natural pearl producing freshwater bivalve mollusc found in the USA otherwise known as Wartyback, or Two-horned pocketbook, winged pimpleback, pimpleback, nodule shell, winged orb shell. It is a rounded shell with two rows of paired knobs or pustules on the posterior half of the shell; no sulcus. Nacre is pearly white and iridescent. Lives in large rivers or in the lower sections of medium-sized rivers in sand or fine gravel.

### **5.181. *Quadrula pustulosa***

*Quadrula pustulosa* (Lea, 1831) is natural pearl producing freshwater bivalve mollusc found in the USA otherwise known as the Pimpleback, Wartyback, or Warty Pigtoe. It is a rounded shell, a green stripe on the umbo, usually densely covered with pustules. Beak cavity deep and open, not compressed as in the purple wartyback. Length to 4 inches (10.2 cm). Nacre pearly white and iridescent.

### **5.182. *Quadrula quadrula***

*Quadrula quadrula* (Rafinesque, 1820) is natural pearl producing freshwater bivalve mollusc found in the USA, otherwise known as Mapleleaf or Stranger; fairly thick shell with well-developed teeth. Squared in outline, lateral surface with two rows of pustules separated by a sulcus. Length to 4 inches (10.2 cm). Lives in medium to large rivers and reservoirs with a mud, sand, or gravel bottom.

### **5.183. Queen Conch**

see *Strombus gigas* (5.203).

### **5.184. Rope**

a strand of pearls, cultured pearls or imitation pearls measuring about 115cm (45 inches) and longer in length.

### **5.185. Saltwater**

a body of water that is saline e.g., sea, oceans, lagoons.

### **5.186. Saltwater Cultured pearl**

a cultured pearl produced by a saltwater mollusc (5.127).

### **5.187. Sautoir**

any pearl, cultured pearl or imitation pearl necklace longer than opera length about 90cm (36 inches).

### **5.188. Scallop**

family *pectinidae*. The scallops or pectens are bivalves that have been a part of man's existence from the earliest of times, both as a source of food and adornment. Their characteristic fan shape remain fairly consistent but there is variation in the 'ears' and sculpturing. Their wide variety of colours and patterns have caused them to be a significant collector's item, to be the focus of scientific study and to serve as industrial symbols such as that of Shell Oil. Scallops known to produce pearls are *Nodipecten (Lyropecten) Nodosus* (Atlantic Lion's Paw) L. 1758., *Nodipecten (Lyropecten) subnodosus* (Pacific Lion's Paw) Sowerby 1835, the Atlantic Sea Scallop (*Placopecten magellanicus*) Gmelin 1791 and *Argopecten purpuratus*. (Scarratt, 2004, Wight, 2004, Federman, 2004).

### **5.189. Scallop Pearl**

natural pearl produced by one of the scallops (*pectinidae*) (5.188). They are non nacreous (5.138) but differ in surface appearance and composition to other non nacreous pearls such as the conch (5.46) and melo (5.124) varieties. The surface appearance is comprised of a patchwork of cells with each cell being formed from three sub-cells. The orientation of these sub-cells and the low magnification fibrous appearance of structures within them give the scallop pearl a peculiar surface sheen (Scarratt, 2004, Wight, 2004, Federman, 2004).

### **5.190. Scottish pearls**

natural freshwater pearls from *Margaritifera margaritifera* (5.114) in Scotland.

### **5.191. Saltwater Pearl**

a natural pearl (5.134) produced by a saltwater mollusc (5.127).

### **5.192. Seed Pearl**

a small salt or freshwater natural pearl (5.134) which is generally under two millimetres in diameter.

### **5.193. Silver-lipped Pearl Oyster**

*Pinctada maxima* (5.164), used extensively for pearl culturing in Australia, the Philippine Islands, Indonesia, and Myanmar; see also Gold-lipped Pearl Oyster (5.77).

### **5.194. Simulant/Simulated**

see (5.96) imitation pearls.

### **5.195. Skinning**

see peeling (5.154).

### **5.196. South Sea**

an area of the Pacific and the Indian Oceans (including the Indian Ocean) between Myanmar and Northern Australia and inclusive of Indonesia and the Philippines. The habitat of the *Pinctada maxima* (5.164) pearl oyster.

### **5.197. South Sea pearls**

natural pearls (5.134) from *Pinctada maxima* (5.164), sometimes known as *Austalpearls* (5.14).



### **5.198. South Sea cultured pearls**

a cultured pearl (5.51) from a *Pinctada maxima* (5.164). Extensively cultured in areas of the Indian and Pacific Oceans, including Myanmar, Indonesia, Philippines, and Northern Australia.

### **5.199. South Sea Keshi Cultured Pearl**

a South Sea (5.196) keshi cultured pearl (5.102) or South sea non-beaded cultured pearl is formed accidentally in *Pinctada maxima* and is a by-product of the culturing process. The creation results from the formation of a pearl-sac (5.153) either following injury of the mantle rim upon handling, from a partial piece of the inserted (transplanted) mantle tissue (5.112) or the whole inserted piece (5.156) following the rejection of a bead (5.16). Some are hollow or contain relatively large amounts of organic matter (Smith, 2001, Wentzell, 2000).

### **5.200. South Sea *Mabé***

assembles cultured blister (5.12) grown in *Pinctada maxima* (5.164).

### **5.201. Spat**

larval molluscs (5.127) that have settled on a hard substratum, to grow to adulthood.

### **5.202. Stability**

the ability of a process or a treatment, including bleaching, bonding, dyeing, irradiating, oiling, staining, tinting and waxing, to retain its appearance in pearls and cultured pearls, under normal wear, repair, cleaning and/or display conditions, and after re-cutting. *Descriptions are under review by the CIBJO Pearl Commission.*

NOTE: Some pearls that are not subjected to the processes mentioned above may change in appearance over a period of time.

### **5.203. *Strombus gigas***

also known as the Queen Conch may be found in areas of the Caribbean and Central America. One of the largest in its group, it has a large flaring lip and the shoulders of its whorls bear blunt protruding nodules which are particularly large for the body whorl. Produces the pink (and other colours) conch pearl (Wye, 1991).

### **5.204. Tahiti cultured pearl**

see Tahitian cultured pearl (5.205).

### **5.205. Tahitian cultured pearl**

the Tahitian cultured pearl is a naturally coloured cultured pearl resulting from grafting and breeding in a natural environment, in French Polynesia, of the pearl oyster *Pinctada margaritifera* (5.163) *var. cumingii*. It results from the secretion of nacre by a graft (5.80) (piece of epithelium of the mantle (5.112) collected from the donor oyster from French Polynesia) around a bead (5.16) inserted in the gonad of this pearl oyster.

### **5.206. Tahiti Keshi cultured pearl**

the Tahiti keshi cultured pearl (see also 5.102) or Tahiti non-beaded cultured pearl (5.137), is formed accidentally in *Pinctada margaritifera* in French Polynesia and is a by-product of the culturing process. The creation results from the formation of a pearl-sac (5.153) either following injury of the mantle rim upon handling, from a partial piece of the inserted (transplanted) mantle tissue (5.112) or the whole inserted piece (5.156) following the rejection of a bead (5.16). Some are hollow or contain relatively large amounts of organic matter.

#### **5.207. Tahiti *mabé***

the Tahiti assembled cultured blister (5.12) grown in *Pinctada margaritifera* (5.163) var. *cumingii* pearl oyster from French Polynesia.

#### **5.208. Tahiti pearl**

the Tahiti pearl is a natural pearl (5.134) secreted in the interior of the pearl oyster *Pinctada margaritifera* (5.163) var. *cumingii* native to French Polynesia.

#### **5.209. Three-quarter composite cultured pearl**

see 5.44.

#### **5.210. Three quarter cultured blister**

see 5.52.

#### **5.211. Three quarter cultured pearl**

see 5.54.

#### **5.212. Tinting**

a treatment which causes a subtle change in colour and/or appearance.

#### **5.213. Tissue nucleated cultured pearl**

a term used in the trade for a non-beaded cultured pearl (5.51).

#### **5.214. Treated pearl or treated cultured pearl.**

a pearl or cultured pearl whose appearance has been altered through any action by man other than by polishing (5.171), drilling (5.61 and 5.36), cutting (5.54), buffing (5.29), peeling (5.154), working (5.220) bleaching (5.23), or cleaning (5.40); e.g., by coating (5.41), dyeing (5.60) - including tinting (5.212), irradiation (5.98), filling (5.68), heating (5.89) oiling (5.143) and waxing (5.218).

#### **5.215. Treatment**

any action by man (other than polishing (5.171), cleaning (5.40), buffing (5.29), peeling (5.154), bleaching (5.23), drilling (5.61 and 5.36), cutting (5.54), and working (5.220) ) that alters the appearance of a pearl or cultured pearl.

#### **5.216. Triangleshell Pearl Mussel**

*Hyriopsis cumingii*, (5.94) the freshwater pearl mussel now used for pearl culturing in China (Scarratt, 2000, Akamatsu, 2001).

#### **5.217. *Tridacna gigas***

the largest and heaviest known mollusc, also known as the Giant Clam, with the two valves weighing as much as about 225kg (about 500lbs). Elongated oval with equal valves. Has about five undulating and rounded ribs. The interior is porcellaneous and white, as are the pearls it produces (Wye, 1991).

#### **5.218. Waxing**

the application of a colourless wax or similar products to, or near, the surface of a pearl.

### **5.219. Weight**

mass (5.116) of a pearl. The SI (Système International) generally uses the term *mass* (5.116) instead of *weight* (5.219). Mass is a measure of an object's inertial property, or the amount of matter it contains. Weight is a measure of the force exerted on an object by gravity or the force needed to support it, see 5.82, 5.83, 5.100, 5.103 and 5.128.

### **5.220. Working**

significantly remove layers of [nacreous or non-nacreous material](#) from a pearl, usually to remove blemishes and/or to reshape a pearl, especially blister pearls (5.25). (Not commonly applied to cultured pearls.) see also peeling (5.154).

**Annex A**  
(normative)

**Quick reference to the Modifications and Treatments to Pearls and Cultured Pearls <sup>1</sup>**

Pearl type, growth instigation and environment. <i>Mollusc (Genus and species)</i>	Commercial name	Colour	Modifications and Treatments (5.215)			Care advice
			Modification or treatment type	Frequency (5.73)	Requires Specific or No Information	Care advice (see Annex C for all clauses referred to in this column)

<sup>1</sup> The stability (5.201) of the treatments listed in table 1 are presently under review by the CIBJO Pearl Commission

<b>Pearl type, growth instigation and environment.</b> <i>Mollusc (Genus and species)</i>	Commercial name	Colour	Modification or treatment type	Frequency (5.73)	Requires Specific or No Information	Care advice (see Annex A for all clauses referred to in this column)
<b>Assembled Nacreous Saltwater Cultured Blister pearl from;</b>  <i>Pinctada maxima (5.164) the Abalone (Haliotis species 5.2 and 5.87) and Pteria Penguin (5.177) Pteria sterna (5.178)</i>	<b>Assembled Mabe Saltwater Cultured Blister Pearl (5.11 and 5.12)</b>	White  All colours	<b>Bleached 5.23</b>  <b>Dyed 5.60</b>	Commonly  Commonly	4.3.1.1  4.3.1.2	6.2.1 and 6.2.2  6.2.1, 6.2.2 and 6.3
<b>Natural Non-Nacreous Saltwater Pearl from various gastropods including;</b>  <i>the Queen Conch (Strombus gigas) (5.203), Horse Conch (Pleuroploca gigantea) (5.168), and the Emperor Helmet (Cassis madagasgerensis) (5.32).</i>	<b>Conch Pearl (5.46)</b>	All colours	<b>Oiled 5.143</b>	Rarely	4.3.2.2	6.1, 6.2.1 and 6.3
<b>Freshwater beaded Nacreous Cultured Pearl from;</b>  <i>Hyriopsis cumingii (5.94), Hyriopsis schlegeli (5.95), Cristaria plicata (5.49).</i>	<b>Freshwater Cultured Pearl (5.71)</b>	White	<b>Coated 5.41</b>	Rarely	4.3.1.2	6.1 and 6.2.1
<b>Freshwater non-beaded Nacreous Cultured Pearl from;</b>  <i>Hyriopsis cumingii (5.94), Hyriopsis schlegeli (5.95), Cristaria plicata (5.49).</i>	<b>Freshwater Cultured Pearl (5.71)</b>	White  All colours	<b>Bleached 5.23</b>  <b>Dyed 5.60</b>	Commonly  Commonly	4.3.1.1  4.3.1.2	6.1 and 6.2.1  6.2.1 and 6.3

<b>Pearl type, growth instigation and environment.</b> <i>Mollusc (Genus and species)</i>	Commercial name	Colour	Modification or treatment type	Frequency (5.73)	Requires Specific or No Information	Care advice (see Annex A for all clauses referred to in this column)
		Grey to black	<b>Irradiated 5.98</b>	Occasionally	4.3.1.2	6.1 and 6.2.1
<b>Saltwater non-beaded Nacreous Cultured Pearl from;</b> <i>Pinctada fucata (5.162), Pinctada margaritifera (5.163), Pinctada maxima (5.164)</i>	<b>Keshi Saltwater Cultured Pearl (5.102)</b>	White to yellow and grey to black	<b>Dyed 5.60</b>	Rarely	4.3.1.2	6.2.1 and 6.3
<b>Natural Nacreous Saltwater Pearl from</b> <i>various Haliotis (5.87) - about 100 named species.</i>	<b>Abalone Pearl (5.1 and 5.3)</b>	All colours	<b>Oiled 5.143</b>	Rarely	4.3.2.2	6.1 and 6.2.1
<b>Natural Nacreous Saltwater Pearl from;</b> <i>Pinctada fucata (5.162), Pinctada imbricata (5.160), Pinctada maculata (5.161), Pinctada margaritifera (5.163), Pinctada maxima (5.164), Pinctada mazatlanica (5.165), or Pinctada radiata (5.166).</i>	<b>Blister Pearl (5.25)</b>	All colours	<b>Dyed Clause 5.60</b>	Rarely	4.3.2.2	6.2.1 and 6.3
<b>Natural Nacreous Saltwater Pearl from</b> <i>Pinctada fucata (5.162), Pinctada imbricata (5.160), Pinctada maculata (5.161), Pinctada</i>	<b>Saltwater Pearl (5.191)</b>	All colours	<b>Oiled 5.143</b>	Rarely	4.3.2.2	6.2.1 and 6.2.2
					4.3.2.2	6.1 and 6.2.1

Pearl type, growth instigation and environment. <i>Mollusc (Genus and species)</i>	Commercial name	Colour	Modification or treatment type	Frequency (5.73)	Requires Specific or No Information	Care advice (see Annex A for all clauses referred to in this column)
<p><i>margaritifera</i> (5.163), <i>Pinctada maxima</i> (5.164), <i>Pinctada mazatlanica</i> (5.165), or <i>Pinctada radiata</i> (5.166).</p> <p><b>Natural Nacreous Freshwater Pearl from;</b></p> <p><i>Amblema plicata</i> (5.9) , <i>Cyrtornaias tampicoensis</i> (5.57), <i>Potamilis purpuratus</i> (5.172), <i>Margaritifera margaritifera</i> (5.114).</p>	<p><b>Freshwater Pearl (5.72)</b></p>	White, pink to purple	<b>Dyed 5.60</b>	Rarely	4.3.2.2	6.2.1 and 6.3
			<b>Filled 5.68</b>	Rarely	4.3.2.2	6.2.1 and 6.2.2
		White, pink to purple	<b>Oiled 5.143</b>	Rarely	4.3.2.2	6.1 and 6.2.1
		All colours	<b>Dyed 5.60</b>	Rarely	4.3.2.2	6.2.1 and 6.3
		Grey to black	<b>Irradiated, 5.98</b>	Rarely	4.3.2.2	6.1 and 6.2.1
		White, pink to purple	<b>Oiled 5.143</b>	Rarely	4.3.2.2	6.1 and 6.2.1
<p><b>Natural Nacreous Freshwater Blister Pearl from;</b></p> <p><i>Amblema plicata</i>(5.9) , <i>Cyrtornaias tampicoensis</i> (5.57), <i>Potamilis purpuratus</i> (5.172), <i>Margaritifera margaritifera</i> (5.114).</p>	<p><b>Freshwater Blister Pearl (5.25).</b></p>	All colours	<b>Dyed 5.60</b>	Rarely	4.3.2.2	6.2.1 and 6.3
		Grey to black	<b>Irradiated, 5.98</b>	Rarely	4.3.2.2	6.1 and 6.2.1
		All colours	<b>Filled 5.68</b>	Rarely	4.3.2.2	6.2.1 and 6.2.2
<p><b>Saltwater Beaded Nacreous Cultured Pearl from;</b></p>	<p><b>Saltwater Cultured Pearl</b></p>	All colours	<b>Bleached 5.23</b>	Commonly <i>P. fucata</i> ,	4.3.1.2	6.1 and 6.2.1

<b>Pearl type, growth instigation and environment.</b> <i>Mollusc (Genus and species)</i>	Commercial name	Colour	Modification or treatment type	Frequency (5.73)	Requires Specific or No Information	Care advice (see Annex A for all clauses referred to in this column)
<i>Pinctada fucata</i> (5.162), <i>Pinctada imbricata</i> (5.160), <i>Pinctada maculata</i> (5.161), <i>Pinctada margaritifera</i> (5.163), <i>Pinctada maxima</i> (5.164), <i>Pinctada mazatlanica</i> (5.165), or <i>Pinctada radiata</i> (5.166). <i>Pteria sterna</i> (5.178)	<b>(5.186)</b>	White		uncommon <i>P. maxima</i>	4.3.1.1	6.1 and 6.2.1
				Rarely <i>P. Margaritifera</i>	4.3.1.1	6.1 and 6.2.1
			<b>Dyed 5.60</b>	Occasionally <i>P. fucata</i>	4.3.1.2	6.2.1 and 6.3
		All colours	<b>Coated 5.60</b>	Rarely	4.3.1.2	6.2.1 and 6.3
			<b>Oiled 5.60</b>	Occasionally	4.3.1.2	6.1 and 6.2.1
		Grey to black	<b>Irradiated, 5.98</b>	Occasionally <i>P. fucata</i>	4.3.1.2	6.1 and 6.2.1
		All colours	<b>Filled 5.68</b>	Rarely	4.3.1.2	6.2.1 and 6.2.2



## Annex B (informative)

### Natural & Cultured Pearls; Localities <sup>2</sup>

Table a: Freshwater cultured

Genus	Species	common name	country	comments
<i>Anodonta</i>	<i>elliptica</i>		Vietnam	
<i>Anodonta</i>	<i>jourdyi</i>		Vietnam	
<i>Anodonta</i>	<i>ssp.</i>		Philippines	
<i>Anodonta</i>	<i>woodiana</i>		China Taiwan	
<i>Chamberlainia</i>	<i>hainesiana</i>		Thailand	
<i>Cristaria</i>	<i>bialata</i>		Vietnam	
<i>Cristaria</i>	<i>plicata</i>		China	1960s-1980s
<i>Cristaria</i>	<i>plicata</i>		Japan	Lake Biwa, originally
<i>Cristaria</i>	<i>plicata</i>		Korea	
<i>Cristaria</i>	<i>plicata</i>		Philippines	
<i>Cucumerunio</i>	<i>novaeollandiae</i>		Australia	proposed for culturing, 1961
<i>Ferreysia</i>	<i>corrugata</i>		India	
<i>Hyriopsis</i>	<i>cumingii</i>		China	tissue- and some beaded
<i>Hyriopsis</i>	<i>cumingii</i>		Vietnam	
<i>Hyriopsis</i>	<i>desowitzi</i>		Thailand	
<i>Hyriopsis</i>	<i>myersiana</i>		Thailand	

<sup>2</sup> Adapted from **Mikkelsen, P. M.**, (2001), Pearl Countries and Regions, and their products, both natural and cultured  
<http://research.amnh.org/invertzoo/malacology/research/pearls/countries.html>

Genus	Species	common name	country	comments
<i>Hyriopsis</i>	<i>schlegelii</i>		Japan	Lake Biwa
<i>Hyriopsis</i>	<i>schlegelii x cumingii</i>	hybrid	Japan	Lake Kasumigaura and near Lake Biwa
<i>Lamellidens</i>	<i>corrianus</i>		India	
<i>Lamellidens</i>	<i>marginalis</i>		India	
<i>Lamprotula</i>	<i>mansuyi</i>		China	
<i>Lamprotula</i>	<i>ssp.</i>		Vietnam	also used for nuclei

Table b: Saltwater cultured

Genus	Species	common name	country	comments
<i>Pinctada</i>	<i>fucata</i>	Akoya	Australia	
<i>Pinctada</i>	<i>fucata</i>	Akoya	China	
<i>Pinctada</i>	<i>fucata</i>		Hawaii	Culturing being developed
<i>Pinctada</i>	<i>fucata</i>	Akoya	Indonesia	
<i>Pinctada</i>	<i>fucata</i>	Akoya	Japan	Since 1920s
<i>Pinctada</i>	<i>fucata</i>	Akoya	Vietnam	Production restarted after Vietnam war
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Fiji	
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Australia	Experimental farms
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	China	
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Cook Islands	Producers
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	French Polynesia	Major producer
<i>Pinctada</i>	<i>margaritifera</i>	subspecies cumingii	French Polynesia	Trade term: Tahiti cultured pearl Tuamotu, Gambier, Society islands
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Kiribati	Experimental farms as of 2001
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl	Marshall Islands	Arno Atoll, 1994; a new venture 2001

Genus	Species	common name	country	comments
<i>Pinctada</i>	<i>margaritifera</i>	oyster Black lipped pearl oyster	Japan	also Pearl culturing since 1914
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Papua New Guinea	Experimental farms
<i>Pinctada</i>	<i>margaritifera</i>	Black lipped pearl oyster	Solomon Islands	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Australia	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Cambodia	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	China	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Indonesia	1928-WW II
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Indonesia	large "Dobo pearls" fr. Dobo Island, 1950-1960
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Indonesia	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Japan	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Korea	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Myanmar	since 1957; warmer in color than south seas; some golden
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Philippines	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Seychelles	production starting 1998 Experimental farms
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Solomon Islands	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Thailand	
<i>Pinctada</i>	<i>maxima</i>	Silver and gold lipped pearl oyster	Vietnam	
<i>Pinctada</i>	<i>mazatlanica</i>	Panamic Black-Lip Oyster	Mexico	Culturing being developed
<i>Pinctada</i>	<i>radiata</i>		India	Culturing being developed
<i>Pteria</i>	<i>penguin</i>		Fiji	Spat being collected

Genus	Species	common name	country	comments
<i>Pteria</i>	<i>penguin</i>	Mabe oyster	Japan	Pearl culturing since 1908
<i>Pteria</i>	<i>penguin</i>		Seychelles	Production starting 1998
<i>Pteria</i>	<i>penguin</i>		Solomon Islands	
<i>Pteria</i>	<i>penguin</i>		Thailand	
<i>Pteria</i>	<i>penguin</i>		Tonga	
<i>Pteria</i>	<i>penguin</i>		Vietnam	
<i>Pteria</i>	<i>sterna</i>	Rainbow Lipped Oyster	Guaymas, Mexico	Pearl culturing since 2000.

Table c: Freshwater natural

Genus	Species	common name	country	comments
<i>Aetheria</i>	<i>ssp.</i>		Egypt	Ancient times
<i>Amblema</i>	<i>plicata</i>	Three-ridge mussel, Bluepoint, Purple Tip, Fluter	USA	
<i>Cyrtonaias</i>	<i>tampicoensis</i>	Tampico pearly mussel	USA	
<i>Ferreysia</i>	<i>ssp.</i>		Bangladesh	
<i>Lamellidens</i>	<i>daccaensis</i>		Bangladesh	Gold
<i>Lamellidens</i>	<i>marginalis</i>		Bangladesh	Culturing being investigated (pink)
<i>Margaritifera</i>	<i>margaritifera</i>		Europe	Historical; includes Austria, Czechoslovakia, Denmark, France, Germany, Great Britain, Norway, Russia, Scotland
<i>Margaritifera</i>	<i>margaritifera</i>		Canada	Newfoundland
<i>Unio</i>	<i>elongata</i>		Great Britain	Historical
<i>Unio</i>	<i>ssp.</i>		Egypt	Ancient times
<i>Potamilis</i>	<i>purpuratus</i>	Blooper, blue mucket, blue hen, purple pocketbook	USA	
<i>Various</i>			US	Historic in Ohio River system; nuclei for cultured pearls now

Table d: Saltwater natural

Genus	Species	common name	country	comments
<i>Argopecten</i>	<i>purpuratus</i>	Chilian Scallop	Chile	
<i>Cassis</i>	<i>madagascarensis</i>	Emporor helmet		
<i>Haliotis</i>	<i>rufescens</i>	Red abalone	Southern California to Mexico	
<i>Haliotis</i>	<i>fulgens</i>	Green abalone	Southern California to Mexico	
<i>Haliotis</i>	<i>cracherodi</i>	Black abalone	N.W. USA to Mexico	
<i>Haliotis</i>	<i>australis</i>	Silver Paua	New Zealand	
<i>Melo</i>	<i>Aethiopica</i>		Papua New Guinea	
<i>Melo</i>	<i>Amphora</i>		North East Australia	
<i>Melo</i>	<i>Broderipii</i>		Philippines	
<i>Melo</i>	<i>Georginae</i>		Southern Queensland Australia	
<i>Melo</i>	<i>melo</i>		Burma	
<i>Melo</i>	<i>melo</i>		Thailand	
<i>Melo</i>	<i>melo</i>		Vietnam	
<i>Mercenaria</i>	<i>mercenaria</i>	northern quahog, hardshell, littleneck, cherrystone or chowder clam		Also known as <i>Venus mercenaria</i> .
<i>Nodipecten</i>	<i>magnificus</i>		Galapagos	
<i>Nodipecten</i>	<i>nodosus</i>	Atlantic lion's paw	South Eastern USA	
<i>Nodipecten</i>	<i>nodosus</i>	Atlantic lion's paw	Brazil	
<i>Nodipecten</i>	<i>subnodosus</i>	Pacific lion's paw	Western Central America	
<i>Pinctada</i>	<i>fucata</i>	Akoya pearl oyster	Bangladesh	"Available"
<i>Pinctada</i>	<i>fucata</i>	Akoya pearl oyster	Hawaii	Historical
<i>Pinctada</i>	<i>imbricata</i>	Allantic pearl oyster	Honduras	Precolumbian
<i>Pinctada</i>	<i>imbricata</i>	Atlantic pearl oyster	Venezuela	Historic; Caribbean pearls
<i>Pinctada</i>	<i>maculata</i>	golden Pipi	Cook Islands	Limited harvest
<i>Pinctada</i>	<i>maculata</i>	golden Pipi	French Polynesia	Grow with/on cultured pearl oysters
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	Cook Islands	Historic; mainly prior to 1970s
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	French Polynesia	Trade term: Tahiti pearl
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	Hawaii	Historical

Genus	Species	common name	country	comments
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	Persian Gulf (Bahrein)	Industry to 1930s
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	Red Sea	Historic center of pearling (for MOP)
<i>Pinctada</i>	<i>margaritifera</i>	Black-lipped pearl oyster	Sudan	For MOP
<i>Pinctada</i>	<i>maxima</i>	Golden and silver lipped	Australia	
<i>Pinctada</i>	<i>maxima</i>	Golden and silver lipped pearl oyster	Malaysia	Historical (early 1900s).
<i>Pinctada</i>	<i>mazatlanica</i>		Panama	Historic (1600s)
<i>Pinctada</i>	<i>mazatlanica</i>		Peru	
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Ceylon	Historic; gulf of Manaar
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	India	Historically extensive
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Kuwait	Commercial pearls larger than 3 mm fr. Harvesting
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Bangladesh	
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Persian Gulf (Bahrain)	Industry to 1930s, hobby now
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Qatar	Used as pollution monitor
<i>Pinctada</i>	<i>radiata</i>	Ceylon pearl oyster	Red Sea	Historic center of pearling
<i>Placenta</i>	<i>placenta</i>	small white pearls	Bangladesh	
<i>Pleuroploca</i>	<i>gigantea</i>	Horse conch	USA	
<i>Pteria</i>	<i>sterna</i>		Mexico	Historical (prior to 1900)
<i>Pteria</i>	<i>sterna</i>		Peru	Reference is 1916
<i>Strombus</i>	<i>gigas</i>	Queen conch	USA	
<i>Tridacna</i>	<i>gigas</i>	Giant clam	Pacific	

## **Annex C** (normative)

### **6. Care requirements pearls and cultured pearls (also see Annex A)**

#### **6.1. Normal care**

With all pearls (5.150), cultured pearls (5.51) and imitation pearls (5.96) avoid rough handling and when not wearing items of jewellery keep them separated from each other to avoid scratches. In addition, cosmetics should be applied before and not after any natural or cultured pearls (5.51 and 5.134) are put on. Following wear, natural and cultured pearls require cleaning with a soft cloth that has been dampened in clean water. When not worn for extended periods; at regular intervals natural and cultured pearls should be wiped, with a soft cloth that has been dampened in clean water. For special care see Clauses 6.2.1 and 6.2.2.

#### **6.2. Special Care**

In addition to normal care, some natural and cultured pearls (5.51 and 5.134) have special care requirements.

##### **6.2.1. Special care for natural and cultured pearls**

Natural and cultured pearls (5.51 and 5.134) shall have special care advice that includes instructions that they should not be worn while carrying out heavy work, should be kept away from all solvents, should not be wrapped in cotton wool or moisture absorbing materials or subjected to high temperatures as well as ultrasonic cleaning and should be kept away from acids during the manufacturing process.

##### **6.2.2. Special care for Abalone pearls, natural and some cultured blisters**

Abalone (5.1 and 5.2) as well as natural and cultured blisters (5.26 and 5.52) are prone to fracture easily and shall have special care advice that includes instructions that they are not for everyday wear and should not be worn while carrying out heavy work.

#### **6.3. Fading and other colour changes**

The colour of some natural and cultured pearls (5.51 and 5.134) may fade when exposed to natural sunlight, artificial light or strong display lights. Some natural and cultured pearls (5.51 and 5.134) that have been colour treated may fade or revert to their original colour when exposed to natural sunlight, artificial light or strong display lights. In these cases, special care advice shall include instructions that these natural or cultured pearls should not be exposed to strong natural or artificial light or to strong display lighting for an extended period of time.

## References

- Akamatsu, S., Zansheng, T, Moses, T,E, and Scarratt, K. (2001) The Current Status of Chinese Freshwater Cultured Pearls. *Gems & Gemology*, Summer, 96-113.
- Anonymous. (1977) Clam Pearls are a Rare but Delightful Find. *Marine Resouce Bulletin*, 9, 1, 3.
- Anonymous. (2005a) Threeridge - *Amblema plicata* <http://www.marietta.edu/~biol/mussels/3ridge.html>. 2005, November.
- Anonymous. (2005b) Threeridge (*Amblema plicata*) <http://www.nps.gov/miss/features/mussels/musselpages/threeridge.html>. 2005, November.
- Brown, G. (1994) *Gemmology of the abalone and other gastropod pearls [abstract]*. Pearls '94, Journal of Shellfish Research, Honolulu, Hawaii, 332
- Du Toit, G., Charoensrithanakul, S., Dunaigre, C., Gawenuntavong, S., Niphatthanaphan, M., Pingkarawat, P., Supriyasin, S., Virunhaphol, V. (1997) Lab Report (Hinge Pearl). *JewelSiam*, 7, 6, 58-62.
- Elen, S. (2001) Spectral Reflectance and Fluorescence Characteristics of Natural-Color and Heat-Treated "Golden" South Sea Cultured Pearls. *Gems & Gemology*, Summer, 114-123.
- Elen, S. (2002) Update on the Identification of Treated "Golden" South Sea Cultured Pearls. *Gems & Gemology*, 38, 2, 156-159.
- Elen, S., Wentzell, C. (2003) Lab Notes - Treated Color "Golden" South Sea Cultured Pearl. *Gems & Gemology*, 39, 3, 217.
- Fankboner, P. V. (2001) Abalone Pearl Culture. <http://www.biol.sfu.ca/faculty/fankboner/fankboner.html>. 2001,
- Fankboner, P. V. (2002) Culturing blister pearls in abalones. *Canadian Gemmologist*, 23, 1, 10-21.
- Farn, A. E. (1979a) Notes from the Laboratory: Carved Conch Shell to Imitate Conch Pearl. *The Journal of Gemmology*, XVI, 6, 366.
- Farn, A. E. (1979b) Notes from the Laboratory: Coque de perle. *The Journal of Gemmology*, XVI, 6, 367.
- Farn, A. E. (1977) Notes from the Laboratory: Pink conch pearl. *The Journal of Gemmology*, XV, 7, 361-362.
- Farn, A. E. (1986) *Pearls Natural, Cultured and Imitation*, Butterworths, London,
- Federman, D. (2004) Gem Profile: Scallop Pearl: Baja Beauty. *Modern Jeweler*, April, 38,
- Fritsch, E., Misiorowski, E. (1987) The history and gemology of queen conch 'pearls. *Gems & Gemology*, 23, 4, 208-221.
- Gomelsky, V. (2001) The Wide World of Pearls (excerpt from) In the Wings. *National Jeweler*, 9/16/2001, 40.
- Hänni, H. (2000) Freshwater Cultured "Kasumiga Pearls" with Akoya Cultured Pearl Nuclei. *Gems & Gemology*, Summer,, 167-168.
- Hänni, H. A. (2006) A short review of the use of 'keshi' as a term to describe pearls. *The Journal of Gemmology*, 30, 1/2, 51-58.
- Hardy, E. (1947) What a Study of Tridacna Pearls has shown: Scotchling a Pearl Myth. *The Gemmologist*, XVI, 197, 335-337.
- Hill., K. (2004) *Mercenaria mercenaria* (Linnaeus, 1758) (common name Northern quahog, hard clam, cherrystone, littleneck). [http://www.sms.si.edu/IRLSpec/Mercen\\_mercen.htm](http://www.sms.si.edu/IRLSpec/Mercen_mercen.htm). 2005, Feb.



- Howells, R. G. (2005) The Tampico Pearlymussel (*Cyrtornaias tampicoensis*) Shades of the Old West. [http://www.conchologistsofamerica.org/articles/y1996/9606\\_howell.asp](http://www.conchologistsofamerica.org/articles/y1996/9606_howell.asp).
- Hurwit, K. (2001) GIA Gem Trade Lab Notes: Faceted Cultured Pearls, Dyed Black. *Gems & Gemology*, Summer, 134-135.
- Hurwit, K. (2000) GIA INSIDER - FROM GEMS & GEMOLOGY: Black Cultured Pearls from Baja California, Mexico. [www.gia.edu](http://www.gia.edu). 2000, 28 December 2002.
- Hurwit, K. (2003) Lab Notes - Cultured Pearl Mystery. *Gems & Gemology*, 39, 3, 216-217.
- Jobbins, E. A., Scarratt, K., Ho, H., Bosshart, G. (1993) Freshwater Pearl Cultivation in Vietnam. *The Journal of Gemmology*, 23, 6,
- Kamat, S., Su, X., Ballarini, R., Heuer, A. H. (2000) Structural basis for the fracture toughness of the shell of the conch *Strombus gigas*. *Nature*, 405, 1036-1040.
- Kelly, S. M. B., Brown, G. (2003) An Interesting Australian Abalone Pearl. *The Australian Gemmologist*, 21, 12, 498-501.
- Kornitzer, L., (1937), *On the Conch Pearl*, The Pearl Trader, Sheridan House, 255-256,
- Landman, N. H., Mikkelsen, P.M., Bieler, R. Bronson, B. (2001) *Pearls: a natural history*, Harry N. Abrams, Inc, New York, 232
- Liu, Y., Hurwit, K. N., Shigley, J. E. (2002) Iridescence of a shell of the abalone *Haliotis rufescens* caused by diffraction. *The Journal of Gemmology*, 28, 1, 1-5.
- Mao, Y., Liang, F., Fu, S., Yu, X., Ye, F., Deng, C. (2004) Preliminary studies on rainbow-pearl of penguin wing oyster *Pteria penguin*. *Chinese Journal of Zoology*, 39, 1, 100-102.
- McLaurin, D. (2002) Bigger and Better: "Perlas del Mar de Cortez"™ is proud to present Pearl Harvest 2002. <http://www.perlas.com.mx/ingles/harvest2002.htm>. 2002, 28 December 2002.
- Mikkelsen, P. M. (2003) Glossary of Pearl Terms. <http://research.amnh.org/invertzoo/malacology/research/pearls/glossary.html>. 2005, August.
- Mikkelsen, P. M. (2001) Pearl Countries and Regions, and their products, both natural and cultured <http://research.amnh.org/invertzoo/malacology/research/pearls/countries.html>. 2005, December.
- Moragat, D., Avendaño, M., Peña, J. , Le Pennect, M., Tanguyt, A., Baron, J. (2001) Genetic and Morphological Differentiation Bwtween Two Pectinid Populations of *Argopecten Purpuratus* from the Northern Chilean Coast. *Estud. Oceanol*, 20, 51-60.
- McLaurin, D. M., Arizmendi, E.A. (2002) Five Centuries of Mexican Pearls. *The Australian Gemmologist*, 21, 5, 190-201.
- Moses, T. (2001) GIA Gem Trade Lab Notes: Conch "Pearl", Highly Unusual Necklace Layout. *Gems & Gemology*, 37, 3, 213.
- Poppe G.T., G. Y. (1992) *Volutes*. *L'informatore*, Piceno edition. Ancona, Italy,
- Rutland, E. H. (1971) The Constituents of Pearls. *The Journal of Gemmology*, 12, 6, 219-225.
- Sanchez, L. (2004) Trade raises questions about chocolate pearls. *Jewellery News Asia*, September, 160.
- Scarratt, K. (2001) Gem News International: A statuette containing a large natural blister pearl. *Gems & Gemology*, 37, 3, 231-232.
- Scarratt, K. (1992) Notes from the Laboratory: Mabe Pearl. *The Journal of Gemmology*, 23, 3,

- Scarratt, K., Hänni, H. (2004) Pearls from the Lion's Paw scallop. *The Journal of Gemmology*, 29, 4, 193-203.
- Scarratt, K., Moses, T, Akamatsu, S., (2000) Characteristics of Nuclei In Chinese Freshwater Cultured Pearls. *Gems & Gemology*, Summer, 98-109.
- Sciaguato, R. (2004) *Rare Perle Naturali, Conch and Melo Pearls*, La Piramide, Milano, 111
- Shirai, S. (1994) *Pearls and Pearl Oysters of the World*, Marine Planning Co, Japan, 109
- Shouguo, G., Lingyum, S., (2001) The enhancement techniques of pearls. *The Journal of the Gemmological Association of Hong Kong*, 22, 32-36.
- Smith, C. P. M., S.F. (2001) Gem News International: Pearl culturing in northwest Australia. *Gems & Gemology*, 37, 3, 234-235.
- Sweeny, J., and Latendresse, J. (1982) *Freshwater Pearl Culturing in America: A Progress Report*, International Gemological Symposium, 193-199
- Traub, J. (1997) Mysterious Pearls. *Smithsonian*, 28, 4, 70-79.
- Traub, J., Zucker, B., Content, D., Scarratt, K. (1999) *Pearl and the Dragon A Study of Vietnamese Pearls and a History of the Oriental Pearl Trade*, Content, Derek J. Rare Books, Incorporated, 125
- Walker, A.-M., Mayerson, W., (2001) Gem Trade Lab Notes: Early Assembled Cultured Blister Pearls. *Gems & Gemology*, Summer, 134.
- Webster, R. (1966) "Osmenda Pearls". *The Journal of Gemmology*, 10, 1, 8-9.
- Wentzel, C. Y. (1998) Cultured Abalone Blister Pearls from New Zealand. *Gems and Gemology*, 34, 3, 184-200.
- Wentzel, C. Y. (2004) Gem News International: Interesting abalone pearls. *Gems & Gemology*, 40, 3, 259-260.
- Wentzel, C. Y., Elen, S. (2005) Pen shell pearls - nacreous and non-nacreous. *Gems and Gemology*, 41, 3, 267.
- Wentzell, C., Tannous, M., Johnson, M. (2000) Gem News: Tahitian and Australian "keshi" pearls. *Gems & Gemology*, 35, 1, 70-71.
- Wight, W. (2004) *Scallop Pearls from Digby, Nova Scotia, Canada*, 29th International Gemmological Conference, China, 165-168
- Wye, K. R. (1991) *The Encyclopedia of Shells*, 2000. Quato Publishing plc, London, 288

## Index

- abalone, 7, 15
- abalones, 15
- acids, 41
- Actinonaias pectorosa*, 7
- Aethiopica**, 39
- Akoya, 23
- Akoya oyster, 17
- Akoya pearl oyster, 7
- Amblema plicata*, 8
- Amphora**, 39
- aragonite, 9
- Argopecten purpuratus*, 8, 26
- artificial layer, 11
- artistic worth, 21
- assemblages, 8
- Assembled Nacreous Saltwater Cultured Blister pearl**, 31
- Assembled/Composite, 3
- Atlantic Lion's Paw, 17
- Atlantic Pearl Oyster, 23
- Atlantic Sea Scallop, 26
- Australia, 14
- australis**, 39
- average diameter, 6
- Bald-pate, 18
- Baroque, 8
- beaded cultured pearls, 8
- bialata**, 35
- BIBOAH, xii
- Bivalvia, 9
- Biwa, 16
- Biwa Cultured Pearl, 2
- Black lipped oyster, 17
- Black sandshell, 17
- black-winged pearl oyster, 24
- Bleached, 4
- bleaching, 14
- bleufer, 24
- blister cultured pearl, 9
- Bloofer, 24
- blue ham, 13
- blue mucket, 24
- Blue-point, 8
- Bombay, 10
- bonding, 14
- brands, 6
- Broderipii**, 39
- buffed, 4, 24
- buttons, 10
- button-shaped, 10
- calcium carbonate, 9
- carats, 6
- Caribbean, 8, 27
- Cassidae, 10
- Cassis madagascarensis*, 10
- Cassis madagasgarensis*, 13
- Cassis madagasgerensis*, 11
- categories of pearl, 1
- Central America, 27
- cerclé*, 11
- Ceylon Pearl Oyster, 23
- Chilean scallop, 8
- Chinese drilled, 13
- CIBJO, xii
- CIBJO Secretariat, xiii
- clam, 9
- clams, 16
- classification, 1
- cleaned, 4, 24
- coating, 5, 28
- Cockscomb, 16
- Cockscomb Pearl Mussel, 12
- cohere, 10
- Columbus's pearls, 23
- concentric rings, 11
- conch pearls, 21
- conchiolin, 9, 20, 22
- Cook Islands, 23
- corals, 16
- corrianus**, 36
- cotton wool, 41
- crabs, 16
- cracherodi**, 39
- cracks, 21
- Cristeria plicata*, 12
- cultured, 1
- cultured blisters, 8
- Cultured pearls, 12
- Cumberlandia monodonta*, 12
- cumingii*, 27, 35
- cut, 4, 24
- Cyclonaias tuberculata*, 13
- Cyrttonaias tampicoensis*, 13
- daccaensis**, 38
- debris, 11
- dekraqueler*, 21
- deerhorn, 13
- definitions, 7
- desowitzi**, 35
- domed-shape, 10
- drilled, 24
- drilling, 10
- dyeing, 5, 14, 28
- Ebonysshell, 14
- edible, 7
- elephant-ear, 17
- Elephant-ear, 13
- elliptica**, 35
- Elliptio crassidens*, 13
- Emperor Helmet, 10
- epithelial cells, 22
- epithelium, 22, 27
- epithelium tissue, 15
- Executive Committee, xiii
- fade, 41
- fancy names, 6
- filling, 5, 28
- fish scales, 13
- Florida Horse Conch, 24
- fluter, 8
- foreign bodies, 9
- French Polynesia, 23, 27
- Freshwater beaded Nacreous Cultured Pearl**, 31
- Freshwater non-beaded Nacreous Cultured Pearl**, 31
- fucata**, 36, 39
- fulgens**, 39

- Fusconaia ebena*, 14
- Fusconaia flava*, 14
- Galapagos Islands, 17
- gastropod molluscs, 7
- gastropods, 11, 15
- Giant Clam, 28
- gigantea***, 40
- gigas***, 40
- gill plates, 22
- Gold-lipped Pearl Oyster, 26
- gonad, 15, 27
- graduated stand, 7
- graft, 22, 27
- Grafting, 15
- grams, 6
- Gulf of Mexico, 17
- hackle-back, 17
- hainesiana***, 35
- haliotidae*, 15
- Haliotis*, 7
- Hankei, 8
- hard-shell clams, 11
- hatchet-back, 24
- heating, 28
- hinge, 16
- Hornyback, 21
- Hyriopsis cumingii*, 12
- Hyriopsis cumingii*, 14, 16, 28
- Hyriopsis schlegeli*, 9, 12
- Hyriopsis schlegelii*, 14
- imbricata***, 39
- imitation pearls, 26
- Imperial Chinese, 17
- indented grooves, 11
- India, 10
- Indian Oceans, 26
- Indonesia, 14, 26
- irradiating, 14
- irradiation, 5
- Japanese name, 8
- jourdyi***, 35
- Kai, 22
- kan, 6
- Karasu mussel, 12
- keshi, 21
- keshi cultured pearl, 27
- lady's slipper, 17
- Lake Biwa, 9
- lakes, 14
- Lasmigona complanata*, 17
- liang, 6
- lighten, 9
- Ligumia recta*, 17
- Lion's paw, 21
- Lion's Paw, 17
- lustre, 22
- Mabe, 8
- Mabé, 24
- magnificus***, 39
- Majorica Imitation Pearl, 6
- Mano de Leon*, 17
- mansuyi***, 36
- mantle, 9, 12, 15, 18, 27
- mantle tissue, 17, 22, 27
- Mapleleaf, 25
- margaritifera*, 18, 36, 38, 39
- Margaritifera margaritifera*, 18, 26
- marginalis***, 36, 38
- marine snails, 11
- marshes, 14
- martensii*, 8
- Martins Pearl Oyster, 23
- mass, 18, 29
- maxima***, 37, 40
- mazatlanica***, 37, 40
- measurements, 6
- Megalonaias nervosa*, 18
- melo***, 39
- Melo aethiopica*, 19
- Melo amphora*, 19
- Melo* pearl, 19
- melo pearls, 21
- melo volutes, 19
- mercenaria***, 39
- Mercenaria mercenaria*, 11, 20
- Missouri mapleleaf, 13
- Mollusca, 20
- momme, 6
- Mule's ear, 13
- mussel, 9
- Myanmar, 14, 26
- myersiana***, 35
- Nacre, 20
- nacreous, 9
- Natural Nacreous Freshwater Blister Pearl**, 33
- Natural Nacreous Freshwater Pearl**, 33
- Natural Nacreous Saltwater Pearl**, 32
- Natural Non-Nacreous Saltwater Pearl from various gastropods**, 31
- natural pearl, 3
- nautilus, 10
- Nodipecten (Lyropecten) nodosus*, 17
- Nodipecten (Lyropecten) subnodosus*, 26
- Nodipecten magnificus*, 17
- non nacreous secretions, 9
- non-beaded cultured pearl, 9, 17, 28
- non-nacreous pearl, 11
- Northern Australia, 26
- novaeollandiae***, 35
- Obliquaria reflexaria*, 21
- octopus, 10
- oiling, 5, 14, 28
- optical phenomenon, 21
- oriental pearl, 3
- ormers, 15
- outer epidermis, 18
- oyster, 9
- Pacific, 26
- Pacific Lion's Paw, 17
- Pacific Ocean, 17
- pancake, 24
- Pancake, 17
- pearl, 3
- pearl grains, 6
- pearl oyster, 8, 10
- pearl sac, 12
- pearl weight, 16
- pearl-sac, 13, 22
- pearly white, 14
- pectinidae*, 26
- peeled, 4, 24
- peeling, 26
- pen pearl, 24
- pen pearls, 21
- penguin***, 37
- Persian Gulf, 10

- Peru, 8
- Pheasantshell, 7
- Philippines, 14, 26
- piece, 17, 22
- piece holder, 22
- piece needle, 22
- Pigtoe, 14
- Pimpleback, 25
- Pinctada fucata*, 7, 12, 22, 23
- Pinctada imbricata*, 8, 22, 23
- Pinctada maculata*, 22
- Pinctada margaritifera*, 9, 12, 22, 27
- Pinctada martensii*, 23
- Pinctada maxim*, 14
- Pinctada maxima*, 12, 23, 26
- Pinctada mazatlanica*, 9, 12, 17, 22
- Pinctada radiata*, 10, 22, 23
- Pink Heelsplitter, 24
- pink pearls, 11
- Pinna*, 24
- Pinna Pearl, 22
- Pleuroploca gigantea*, 11, 16
- plicata***, 35, 38
- polish, 22, 24
- polished, 4, 24
- ponds, 14
- Proptera alata*, 24
- Proptera purpurata*, 24
- protoconch, 19
- Pteria penguin*, 12, 18, 22
- Pteria sterna*, 9, 12, 22
- Pteriidae*, 22
- Purple Heelsplitter, 24
- purple pimpleback, 13
- purple pocketbook, 24
- Purple Wartyback, 13
- purple-tip, 8
- purpuratus***, 38
- Quadrula metanevra*, 25
- Quadrula nodulata*, 25
- Quadrula pustulosa*, 25
- Quadrula quadrula*, 25
- quahog, 11, 20
- Queen Conch, 11, 27
- radiata***, 37, 40
- radiation, 16
- rainbow-lipped pearl oyster, 25
- razorback, 17
- Red Sea, 10
- rejection of a bead, 17
- rivers, 14
- rufescens***, 39
- Saltwater Beaded Nacreous Cultured Pearl**, 33
- Saltwater non-beaded Nacreous Cultured Pearl**, 32
- scallop, 9, 21
- scallop pearl, 26
- scallop pearls, 8, 21
- schlegelii***, 36
- scleroprotein, 22
- sea ears, 15
- sea fans, 16
- sea urchins, 16
- Sector 1, xii
- Sector 2, xii
- Sector 3, xii
- shrimp, 16
- Silver/Gold lipped oyster, 17
- Silver-lipped Pearl Oyster, 14
- simulate, 16
- snails, 16
- sow's ear, 17
- Spanish pearl gatherers, 8
- special care advice, 41
- special care requirements, 41
- Spectaclecase, 12
- staining, 14
- starfish, 16
- sterna***, 40
- Stranger, 25
- Strombus gigas*, 11, 25
- surface blemishes, 22
- Système International, 18
- Tahiti keshi cultured pearl, 27
- Tahiti pearl, 28
- Tahitian cultured pearl, 27
- Tampico pearlymussel, 13
- tampicoensis***, 38
- terminology, 1
- terms, 7
- Thailand, 14
- thickness of nacre, 20
- three dot, 21
- Three Horned, 21
- Threehorn Wartyback, 21
- threeridge mussel, 8
- tinting, 5, 14
- total weight, 6
- Trade Marks, 6
- trade **term**, 16
- treatment, 14
- triangleshell pearl mussel, 16
- Tridacna gigas*, 11
- Two-horned pocketbook, 25
- uniform strand, 7
- union or cohesion, 10
- univalve mollusc, 18
- Venus mercenaria*, 20
- Wabash, 14
- Warty Pigtoe, 25
- Wartyback, 25
- Washboard, 18
- wax, 28
- waxing, 5, 14, 28
- weight, 18
- White Heelsplitter, 17
- winged pimpleback, 25
- woodiana***, 35
- worked, 9, 24
- working, 5
- worms, 16